JPRS 78931

9 September 1981

Japan Report

No. 134

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

JPRS 78931

9 September 1981

JAPAN REPORT

No. 134

CONTENTS

MILITARY

JDA To Request 17 P-3Cs, 43 F-15s in FY 1982
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 1

JDA To Work Out Budget Request Soon
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81) 3

FY 1982 MSDF Shipbuilding Program, Prospects and Problems
(JPE AVIATION REPORT-WEEKLY, 19 Aug 81) 4

SCIENCE AND TECHNOLOGY

Japan's Petroleum Industry Said To Be at Turning Point
(ENERUGI FORAMU, Mar 81) 6

Petroleum Committee Chairman, Toshimitsu Fujita Interview
Companies' Strategies

Nation's Oil Strategy for 1980's
(JAPAN PETROLEUM & ENERGY WEEKLY, 20, 27 Jul 81) 19

Petroleum Alternatives Development Stepped Up
(JAPAN PETROLEUM & ENERGY WEEKLY, 27 Jul 81) 27

Early Introduction of Oil Standard Prices Delayed
(JAPAN PETROLEUM & ENERGY WEEKLY, 17 Aug 81) 31

Measures To Rehabilitate Coal Mining Industry Urged
(JAPAN PETROLEUM & ENERGY WEEKLY, 10 Aug 81) 35

Pratt, GE Seek Participation in RJ500
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 41

Advisory Body Favors Private Takeover of NAMCO
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 42

Y-XX Program Reported at Standstill
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 43

Sony To Promote Aerospatiale Helicopter Support
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 44

JDA, MITI Differ Over MT-X Contractor Selection
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 45

Nation Ready To Transfer Defense Technology to U.S.
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 47

ASDF To Consider New Support Fighter for FY 1983-1987 MTDP
(JPE AVIATION REPORT-WEEKLY, 5 Aug 81) 49

Top Executives of MDC, Fokker in Tokyo
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81)........................ 50

SJAC Assigns 12 Firms to 15 Research, Development Projects
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81) 51

Sumitomo To Export 767 Landing Gear Parts to CPC
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81) 53

NAL Tests Aileron for Stol Aircraft
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81) 54

JDA To Select MT-X Prime Contractor in September
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81) 56

Durability of H-1 Rocket's Combustion Chamber Proven
(JPE AVIATION REPORT-WEEKLY, 12 Aug 81) 58

ASDF Asks Three Firms for Badge-X Proposal
(JPE AVIATION REPORT-WEEKLY, 19 Aug 81) 59

NEC Named To Produce Nike Spare Parts
(JPE AVIATION REPORT-WEEKLY, 19 Aug 81) 60

MSDF To Delay Full-Scale Procurement of New K-X Mines
(JPE AVIATION REPORT-WEEKLY, 19 Aug 81) 61

MILITARY

JDA TO REQUEST 17 P-3CS, 43 F-15S IN FY 1982

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 pp 8-9

[Text]

The JDA has decided to request funding of 17 P-3C antisubmarine warfare aircraft and 43 F-15J fighter-interceptors in FY 1982, compared with the originally-planned 12 P-3Cs and 32 F-15Js. It will submit its budget request for FY 1982, including these aircraft, to the Ministry of Finance (MOF) late in August.

The increase in the P-3C and F-15J requests from the originally-planned levels is aimed at demonstrating the JDA's intention to meet the United States' demand for Japan's stepped-up antisubmarine and air defense capabilities as much as possible.

The JDA was authorized by the National Defense Council in December 1977 to procure 45 P-3Cs and 100 F-15Js, of which it obtained funding for eight P-3Cs and 23 F-15Js in FY 1978 and 10 P-3Cs and 34 F-15Js in FY 1980. As for the remainder, the JDA's original plan has envisaged 12 P-3Cs and 32 F-15Js in FY 1982 and 15 P-3Cs and 11 F-15Js in FY 1984. In the recent decision, five P-3Cs and 11 F-15Js out of the total for FY 1984 were added to the FY 1982 requests.

The JDA expects the MOF to approve the increased requests. If so, it would be able to complete funding of all the authorized 100 F-15Js in FY 1982. As to P-3Cs, only 10 aircraft would be left over to FY 1984. As the JDA intends to procure these aircraft beyond the authorized levels, the National Defense Council is likely to authorize additional procurement under the FY 1983-87 Medium-Term Defense Program to be prepared by the end of the current fiscal year.

The advanced P-3C and F-15J funding in FY 1982, if approved, could sharply increase disbursement in the following years. In general, appropriations for defense equipment in a year for ordering are far less than prices with full-scale disbursement left over to the following years. Down payment at the time of ordering accounts for only 1.45 percent of a full price for the P-3C and 0.79 percent for the F-15J, according to the FY 1980 budget. Thus, the advanced funding would not necessarily increase appropriations in FY 1982 by a big margine, but would boost follow-on disbursement sharply.

The JDA estimates the value of the P-3Cs and F-15Js for FY 1982 funding at more than ¥600,000 million. In FY 1980 prices, they are valued at ¥526,700 million -- ¥163,400 for the 17 P-3Cs and ¥363,300 million for the 43 F-15Js. But inflation and increased license production costs are estimated to boost their value to more than ¥600,000 million. Most of these aircraft for FY 1982 funding will be covered by license production which costs more than direct import from the United States through the Foreign Military Sales channel. Eventually, disbursement for these aircraft after FY 1982 would exeed ¥600,000 million.

Follow-on disbursement for all defense equipment, including ships, missiles, tanks and howitzers, as well as aircraft, totaled ¥610,000 million under the FY 1980 budget and ¥390,000 million under the FY 1981 budget. As to the FY 1982 budget, follow-on disbursement for P-3Cs and F-15Js alone would increase more than 1.5 times over the FY 1981 budget.

But the MOF intends to scrutinize the JDA's budget request in a bid to hold down follow-on disbursement as well as FY 1982 appropriations for its prime purpose of reconstructing the deficit-ridden national finance.

CSO: 4120/317

MILITARY

JDA TO WORK OUT BUDGET REQUEST SOON

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 p 8

[Text]

The Japanese Defense Agency (JDA) is expected to work out its budget request for FY 1982 by mid-August, prior to submission to the Ministry of Finance at the end of the month.

In the request, the JDA intends to hold the increase in FY 1982 appropriations to the government-set ceiling of 7.5 percent. But it will seek a huge rise in disbursements in following years mainly for defense equipment in a bid to accomplish equipment funding targets of the FY 1980-84 Medium-Term Defense Program ahead of schedule and to achieve the defense preparedness stipulated in the National Defense Program Outline by 1987, the last year of the new five-year program.

Equipment subject to the FY 1982 budget request will include 17 P-3C antisubmarine warfare aircraft for the Maritime Self-Defense Force (MSDF) and 43 F-15J/DJ fighter-interceptors for the Air Self-Defense Force (ASDF), which could require more than ¥600,000 million in follow-on disbursement. Other equipment requiring huge follow-on disbursements will be MSDF destroyers and other ships, improved Hawk missile systems for the Ground Self-Defense Force (GSDF), Tan-SAM short-range surface-to-air missiles for the ASDF and GSDF, air-to-air missiles for ASDF F-15Js and ammunition.

The JDA will also request a fast increase in research and development funds for both FY 1982 and follow-on disbursement.

As to personnel increase to meet a rise in equipment inventories, JDA head Joji Omura will consult with Prime Minister Zenko Suzuki and Administrative Management Agency Director-General Yasuhiro Nakasone before making a final decision, because any personnel increase could be affected by the Suzuki cabinet's high priority for administrative reforms to slash the total number of government employees.

CSO: 4120/315

MILITARY

FY 1982 MSDF SHIPBUILDING PROGRAM, PROSPECTS AND PROBLEMS

Tokyo JPE AVIATION REPORT-WEEKLY in English No 535, 19 Aug 81 pp 9-10

[Text]

The Maritime Self-Defense Force (MSDF) is expected to request funding of 11 ships, including five destroyers, in FY 1982. Prospects and problems on these ships follow:

Destroyer

The MSDF may request four 2,900-ton DD and one 1,400-ton DE destroyers in FY 1982 and one 4,500-ton DDG guided-missile, two DD and as many DE destroyers in FY 1983 to accomplish a funding target of 16 destroyers (two DDGs, 10 DDs and four DEs) stipulated in the FY 1980-84 Medium-Term Defense Program (MTDP) one year ahead of schedule. In FY 1980 and 1981, one DDG, four DDs and one DE were funded. If the remaining 10 ships are approved in FY 1982 and 1983, destroyer funding from FY 1977 through FY 1983 would total 23 vessels -- 15 2,900-ton DDs, six 1,200-1,400-ton DEs and two 4,500-ton DDGs. As a result, DDs for three escort flotillas and DEs for two MSDF district commands will be modernized. DDGs will increase to six ships. DDs and DEs for funding after FY 1983 may shift to new performance-improved types to meet several operational requirements.

Submarine

The MSDF plans the remaining three out of the five submarines stipulated in the MTDP to be funded by FY 1983, instead of the originally-scheduled FY 1984. Two were funded in the first two years of the MTDP. It may request one in

FY 1982, and two in FY 1983 when more funds than the previous fiscal year could be set aside for ships with an aircraft request reduced.

PM-X

The MSDF may request one PM-X new patrol boat in FY 1982 after adopting the 260-ton slide type with a 18,000-horsepower diesel engine proposed by Mitsubishi Heavy Industries Ltd., which has turned out to be less costful than other candidates such as Hitachi Shipbuilding & Engineering Co.'s hydrofoil type and Mitsui Engineering & Shipbuilding Co.'s SWATCH (Small Waterplane Area Twin Hull) type. This is the test boat for evaluation incorporated into the FY 1980-84 MTDP. The boat, if funded, would be built by FY 1984. Weapons systems for it, including Harpoon surface-to-surface missiles, 76mm guns and Stinger portable surface-to-air missiles, will be requested in FY 1983. Evaluation of the test boat armed with these weapons systems may start in FY 1985 or later. PM-X's are designed to replace the existing five PT torpedo boats which will retire from FY 1986.

Minesweeper

The MSDF is hopeful of getting two 440-ton MSC minesweepers funded in FY 1982 because two were approved each in FY 1980 and 1981. The MTDP calls for funding of 11 such ships in the five years from FY 1980.

Surveying Ship

The MSDF plans to get two 1,100-ton AGS surveying ships funded under the current MTDP. A request for one of them in FY 1981 was disapproved. In FY 1982, this request may be renewed.

DSRV

The MSDF may request one DSRV (deep submergence rescue vehicle) ship in FY 1982 for mounting on a 3,600-ton AS submarine tender funded in the previous fiscal year. Evaluation of a test DSRV ship was completed in FY 1977, leaving no problem with the FY 1982 request.

CSO: 4120/308

JAPAN'S PETROLEUM INDUSTRY SAID TO BE AT TURNING POINT

Petroleum Committee Chairman

Tokyo ENERUGI FORAMU in Japanese No 315 Vol 27 Mar 81 pp 59-61

[Interveiw with Toshimitsu Fujita, Chairman of the Petroleum Committee, Liberal Democratic Party: "Now Is the Time To Revise Petroleum Industry Laws"]

[Text] The Problem Has Just Erupted

This Journal: There are presently large changes taking place to the basic conditions of Japan's petroleum industry. I feel that there are also some major shifts coming in Japan's petroleum policy framework. Can you give me some insight on the basic aspects of the situation?

Fujita: No matter how much the situation changes, the main energy source, at least for the remainder of this century, will have to be oil as far as this country with its low resources and energy is concerned, and this will be the basic premise on which future policies have to be based.

It has been said that our dependency rate on oil will be 50 percent in JFY 1990, but the absolute volume itself will represent an increase, so there will be a need to be assured of an even greater volume of oil than what we need today.

To this end, it will be necessary to alter our dependency on Middle East oil, which presently accounts for 70 percent of our import, and diversify the sources of oil as much as possible. Some specific sources are Mexico, Ecuador, North Sea, Indonesia, or the Senkaku Islands. In the particular case of the Senkaku Islands, there has been a survey conducted by the Prime Minister's Office since 1968. There are also the Japanese-Korean continental shelf, Sakhalin, and Siberia.

In this manner, we must transcend ideology and consider supply sources from all conceivable directions.

When we consider oil policy in such a light, it would mean a shift from our concentration on the Middle and Near East to a world-wide supply base. In order to abet this change, it is my belief that the petroleum industry laws which were enacted in 1962 need to be revised. This is particularly the case since the most recent situation is that the oil producing countries are considering a shift to products export, and the opportunity is ripe for reevaluation of the principle of consumer country refining. Such being the case, the oil industry laws which were formulated to promote the oil industry mainly through operating rights to purification facilities must probably undergo drastic reassessment.

At the same time, the environment surrounding oil is undergoing turbulent times while the administrative guidance of the Ministry of International Trade and Industry is becoming more complex and diverse, and this has conversely resulted in the surfacing of the extremely difficult situation involving the problem of Dokukinho [private monopoly laws]. In other words, we will have to decide just where to set the limits to free economy and administrative guidance.

Consequently, the end result may be diversification of import sources, promotion of development of Japan's surroundings, and reinforcement of stockpiling measures which will probably make up the central subjects in oil policies from now on. The western world is said to have more than 140 days supply of oil in their stockpiles, and the situation in Japan is such that the combined efforts of government and private sources have finally made possible a 100 days supply. Together with the 90 days supply for private use, a minimum of 30 million kiloliters needs to be stockpiled in this country.

This Journal: What is the situation when seen with respect to substitute energy?

Fujita: Coal has been highly evaluated, and there is talk that close to 20 percent of the total energy will be supplied by coal by 1990, but the problem here is the acceptance system. There has been no serious thought directed at just where and how coal centers and ash disposal will be assigned. It does not suffice to simply say that about 20 percent of the energy needs will be provided. There is also talk that nuclear energy will provide more than 10 percent and coal liquefaction about 6 percent, and this type of diversification needs to be actively promoted.

Now, if such comes to pass, I have concern in another direction in that where it was necessary up to now to ride herd over oil which was the pillar on which energy was based, the diversification in energy sources from here on may result in a very unstable situation.

This Journal: It has been said that the oil industry is in a state of excessive competition, and on this point...

Fujita: You are speaking, for example, about the transport of crude oil and products. This is being conducted in its entirety by each company by itself, and tremendous losses are involved.

Now, there has been talk of reorganizing the present 36 refining companies and 12 sales companies to something like the 9-company setup of the power companies, and this subject was hotly debated at the recent Asian Oil Association's Oil Capital Cooperative Session.

I believe that like it or not, there is inevitably going to be need to reorganize due to external factors.

In addition, there is the problem of excessive competition among the 59,033 gas stations and gasoline dealers, and it may be necessary to revise the gasoline sales laws to allow the stations to stay open on Sundays and holidays if they so desire, give relief through tax laws, or make some readjustment regarding fiscal problems.

The gasoline tax in particular brings in enormous revenue, yet except for some slight subsidies, very little is returned to the oil area, and this is an area in which the gasoline sales laws need to be revised.

This is why the revisions to government economic policies, administrative policies, and laws have suddenly become necessary. In addition to this situation, the sudden jump in prices of oil with the first and second oil crises have been external factors which helped greatly to precipitate this present situation.

Establishment of Import System Is Pressing Item

This Journal: In any event, what the problem boils down to is that the oil industry laws were enacted of the basis of availability of cheap and abundant oil, but we now have the contrary situation that these laws have become leg irons. With this in mind, how would you propose that the oil industry laws be revised to cope with the present situation?

Fujita: Since the war, there has been a gradual transition from coal centered energy policies to oil centered energy policies with 1960 being the approximate boundary of crossover, and this energy source may once again be switched back to coal. I have considerable concern over such a change. This is because there is a tendency to regard oil rather lightly under the disguise of energy conservation or disengagement from oil. There is need for awareness of the fundamental concept that oil is still the primary energy source. This has to be the premise on which the oil industry laws should be amended.

Since small refineries with a capacity on the order of merely 50,000 bbl/day are still in business under government sanction to provide this energy, there is some feeling in the industry that the government will come to the rescue in time of distress. I feel that any revision to the oil industry laws must eliminate such behavior. It is my belief that there has to be reorganization or a few companies of high performance which can even compete with the major ones through reinforcement with private capital.

With the exception of the agricultural products industry, all of Japan's industries have been able to excel in international competition, and there is no rationale for the oil industry alone to remain in its present state. There is need to strengthen the oil industry whether it be for modernization purposes, fiscal purposes, foreign relation purposes, or information gathering purposes. The situation at the present is that fiscal capital lurks in the background and is casting its shadow, but this is not the problem, and it is necessary for the oil industry itself to reinforce itself in power and in material. The direction to take may be to make selective revisions of the oil industry laws, otherwise there will be no way for the oil companies to reorganize.

This Journal: In that case, the focal point of the problem is whether to reorganize government leadership, including administrative guidance, or to reorganize private industry leadership, including the activity and creative forces of the private sector.

Fujita: I really believe that a completely free economy as such will not truly function in Japan. This is why government leadership will tend to end up in a regulated economy, and I am wondering whether a planned economy under private leadership and planned economy under newly revised oil industry laws are not possible. Would not leadership by the Ministry of International Trade and Industry be running counter to the times?

On the other hand, Japan has risen to the level that it is the world's second largest consumer of oil next to the United States, and external pressures have become fierce as a result of which government backup is vital. There is a need to mobilize private forces and activity to abet reorganization and modernization of the oil industry. The international battle cannot be won unless this course is followed. This is an extremely difficult problem.

That is why there may be no other way but to plan the economy of agriculture and the oil problem in a transitional manner for the time being. It would be fine if we get on track, but there is need for a certain degree of planned economy until then. It is from such a viewpoint that I would like to see this area excluded from the scope of the Dokukinho. This is where my views are in direct confrontation with those of Mr Hashiguchi, but there may be need for some kind of drastic treatment such as a temporary cessation of the Dokukinho.

This Journal: So now if we are to consider who has the power in such a situation, it would be the trading companies. The supply of crude oil has now passed from the hands of the major oil companies to these companies. At the same time, it is thought that the crude oil supply capacity of the major oil companies can be assessed to be of the same order. Where would you place such power in the new industrial system which you propose?

Fujita: Crude oil procurement actually has come to the stage that these companies are already handling part of it. Also looking at this country's situation for handling oil imports, these company dealings, GG (government to government) dealings, DD (direct dealing), and spot dealing present a very confusing situation.

This is why we would like to do away with spot dealings which are relatively higher in cost and unstable. GG was a failure in Mexico. I believe GG is doomed. This situation resulted when 21 companies jumped on the band wagon and decided to take a stab at it. It seems that Mr (Rokusuke) Tanaka recently went to plead for some increase in volume, but increases are hard to obtain. In this connection, it may be more effective to take the direction of enhancing DD rather than GG, and the government should provide fiscal backup in that direction.

Setting up a reinforcement for the import system is really necessary. For example, the Japan-Ecuador Cooperative which I chair is concerned with Ecuador where it has been known for sometime before there is oil. Even before I became president of the oil problem survey committee, there were queries from the Ecuador ambassador whether Japan would buy some Ecuador oil. Now, a certain oil company teaming up with certain commercial companies secretly imported 15,000 bbl/day. Such selfish acts are bad for the overall picture. Where we had proposed 30,000 bbl/day, the wish was to extend this to 50,000 bbl/day. On the other hand, there was a long-term plan to establish medical treatment facilities in Ecuador.

It has been said that Japan has too many refineries and crude oil dealers. If we now reduce the number and concentrate refining efforts and go to DD while eliminating import reporting systems and tightening up the overall system, the resulting reinforcement of the import system may be a necessary step.

If there is too much attention directed to GG dealings, there may be suspicion that such projects are being conducted in order to make money with government funds, and here again a problem is created.

The problem of revision of the oil industry laws is something which I hope will be realized in one way or the other in the year or so I have left as chairman of this oil problem survey committee. I am speaking now with stimulating tones hoping to create such a mood (laughter).

Political Truce on Energy

This Journal: The energy problem including oil is a very large problem involving assurance of national safety, and we would like to see a basic consensus which overrides all party factions.

Fujita: I read the February issue of Energy Forum (Editor's note: "Total Safe Assurance of Energy of all Parties") and Mr Shintaro Anbai (my party) and Mr Osamu Takefujiyama (Socialists) are in general agreement.

This is why I want to promote energy policies, particularly the promotion of nuclear energy, on a bipartisan basis.

In this vein I wish to see a political truce with regard to energy policies by 1990. Since a nation's life is very long, let us get together on this one subject casting all ideologies aside to promote this program wholeheartedly. That is the movement I wish to foster. We will be hurting unless we do so.

Where energy and food are concerned, Japan will be in perilous state unless the factions can come into agreement. I truly want to promote energy from the standpoint of a political truce.

Companies' Strategies

Tokyo ENERUGI FORAMU in Japanese No 315, Vol 27 Mar 81 pp 62-67

/Special Report: "Petroleum Industry Heading Toward Energy Conglomerates"/

This has long been called the age of uncertainty and the prospects for introduction of nuclear power, coal, and geothermal type substitute energy are extremely difficult. Looking just at coal, not only is the combustion of raw coal being promoted as well, but even the specialist in the field cannot hazard guesses as to which energy source will at what time become available at what price and what scale on the market.

At present, the Iran revolution of 1979 has been the wedge which saw the price of oil climb sharply in no time from 20 to 30 dollars/bbl, and we are now at the verge of breaking the 40 dollar/bbl level.

In the midst of this turmoil, the need for substitute energy has become apparent once more, and not only the side issue of safe supply but the price issue have become subjects of reawareness.

Japan's industrial world is becoming more aware of this perilous situation as evidenced by "if the price of oil keeps escalating at this pace, we will be unable to stay in business" (cement industry), and the movement to disengagement from oil (mainly conversion to coal) is taking place starting with industries in which conversion can be realized more readily headed by the iron and steel industry and the cement industry from last year.

On the other hand, such moves conversely invite reduced oil consumption. The rise in energy conservation awareness in answer to increasing prices and the decline in prosperity which has enveloped the United States and the EC have also joined to cause reduction in oil demand. For example, let us look at C grade oil which has been termed industrial use "bread." The consumption of C grade oil in Japan for September of 1979 was about 7.2 million kiloliters, but one year later in September, 1980 it was 5.76 million kiloliters. This was a decrease of about 25 percent, and it may be safe to say that there was an average 20 percent decrease in demand.

Should this trend continue in the future, the party which would be in greatest jeopardy will be the oil companies. To be sure, the sharp rise in price is the most pressing problem, but this is an indication that the participation in substitute energy endeavors is the pressing subject on a medium and long-term basis.

The "World's Energy Prospects" published yearly by the leading international oil industry Exxon in its 1981 edition indicated that Japan's dependence on imported oil is expected to decrease from the 73 percent in 1979 to 54 percent in 1990 and to 43 percent in 2000, and the actual volume will be of the order of 5 million bbl/day in 2000 thereby suggesting that Japan's import will be crawling laterally. The "1990 World's Energy Forecast for 1990" put out by the Japan Energy Economic Institute also predicts Japan's dependence on imported oil to be 58 percent in 1990 (this is 4 percent higher than the Exxon estimate).

What becomes evident from these data being released presently are 1) there can be expected no increase in imported oil from here on and 2) despite this situation, energy demand is expected to increase by 2 percent. In such a situation, there is a feeling "substitute energy development needs to be aimed at 10 to 20 years in the future" (president Ohori of the Petroleum Cooperative) that is increasing within the ranks of the oil companies.

This is something which not only those private industries such as Shukko are involved in but companies such as Nippon Oil and Exxon which heretofore had not lifted a finger in this direction are now pouring capital into substitute energy development, and this is an item of note.

Private System also in Do or Die Situation

Engagement in new energy endeavors is also taking place within the private industry system. One item of note is the "New Energy Policy Committee" set up by Kyodo Oil Company which started functioning in January of this year. Kyodo Oil's participation in substitute energy has been delayed in the past, and this is its answer to seeing large users of its C grade oil shift to coal and other energy forms. Just which area this company will first venture into is not known as yet, but it seems to be studying directions to follow after analyzing the situation with respect to conversion to other energy forms besides oil and evaluating trends in new energy sources. Kyodo Oil got its start under the sponsorship of the Ministry of International Trade and Industry, and its interest in the new energy area was very low in the past, but it may be said that the wave of the times also engulfed Kyodo Oil such that it now has great interest in the new energy area.

In another direction, if one were to point out a true protagonist of new energy development from the ranks of private industry, it undoubtedly will be Shukko Kyosan. Since Shukko established its "New Energy Office" in 1977, it has spearheaded Japan's efforts in the substitute energy race in the three directions of coal, uranium, and geothermal sources.

In the area of coal, this company was the icebreaker of Japan's oil industry to initiate import of general coal from Australia starting last year. It has been conducting analysis via artificial satellites and airplanes in the area of geothermal development, and it will begin borings at 11 sites including the Yoshifu-machi area in Kyushu sometime this year. It is also engaged in joint participation with the Uranium Gesellschaft of West Germany to develop uranium mines.

In addition, Shukko is also engaged in research on methods of extracting butanol from plant fibers to be used in the production of gasohol and is also planning to enter oil shale and soil sand development. It may be said that Shukko clearly is planning to develop into an integrated energy company.

We next look at Daikyo Oil which was embroiled in a capital cooperative problem with Asia Kyoseki which in July of last year opened its "Coal Business Office" and has been engaging in import and sale of imported coal. This company will establish its new "New Energy Committee" the next year. This committee will be the inquiry organ for this company's board of directors and will look into not only coal and coal liquefaction but oil shale and oil sand through respective working groups and will involve the whole company in studies on new energy.

The next company is Asia Oil which entered into a new cooperative relationship with Daikyo Oil. This company entered into an agreement at the end of last year to supply domestic coal mined at the Sunagawa Mine of Mitsui Mining Company to the Kamiiso plant of Nippon Cement located in Hakodate. The quantity to be supplied is rather small and of the order of 20,000 tons per year, but it features the purchase and trade of domestic coal which is readily obtained. The reason Asia Oil is engaged in this business is that the Hakodate plant of Japan Cement has a direct pipeline from Asia Oil's Hakodate Refinery through which it has been receiving C grade oil. Since Japan Cement had been planning a switchover to coal, In addition, Maruzen Oil which is also another private oil company established its "New Fuel Office" in March of last year and has been engaging in handling new energy development centered on coal but it is also studying a diversity of new energy sources such as biomass fuel as well. Another joint business is coal liquefaction following the process developed by Gulf Oil of the United States in which a three country cooperative effort between Japan, United States, and Germany is being promoted, and the "Japan SRC" which will be this cooperative's window in Japan was formally established. This new company has as its nucleus the five companies of Mitsui Coal Liquefaction, Nippon Steel Company, Daikyo Oil, Nippon Mining, and Maruzen Oil. On the other hand, there are rumors that the West German and American governments will be cutting off their financial support, and there is some confusion.

As a result, projects such as the "Japan Coal Liquefaction Technology Development" based on the Exxon method (with participation by 12 companies including Esso, General Oil, Toa Fuel Industry, and Shukko), the peat liquefaction project in Victoria Province of Australia which is a joint project of Shukko and Asia Oil, and the Mitsubishi Group liquefaction business based on the Mitsubishi Solvolysis method with participation by the Mitsubishi Group are seeing the activities toward new company establishment running into a dead end.

Leaving aside the case of the Mitsubishi Group which is comprised of all domestic companies, international projects to which funds have been advanced have come under question by certain oil people as to just how much merit there is in such an approach. The Japanese companies do not have the capacity to come forth with large sums of money like the majors, and they are hard put just what to do with what little they have. Even then externally financed systems have the advantages of using the large pipes of the majors as lever to serve to good use both in know-how and in fiscal matters. Conversely, the new energy strategy of these private companies need to come up with a few schemes of their own.

New Strategy of Trading Companies Which Have Come to the Fore of Oil Procurement

"Dantotsu Mitsubishi" Gambles on Pursuit

"Sumitomo Shoji Incident"

There are some extradordinary events taking place among the large trading companies. Total sales is the index by which the might of an integrated trading company is assessed, and the underlying factor of these disturbances is that there is the possibility that the order in total sales rank for this year's March term may be altered. The eye of this typhoon is Sumitomo Shoji Kaisha. This company presently is fifth in order to total sales. In the intermediate compliation of last September, Sumitomo Shoji was just nosed out by Marubeni. Where Marubeni chalked up sales of 4.7214 trillion yen sales, Sumitomo Shoji accounted for 4.704 trillion yen for a differenceof but 17.4 billion yen. If Sumitomo Shoji had sold one more large tanker load of oil to a small plant, it would have overtaken Marubeni. Whether Sumitomo Shoji can displace Marubeni is the next compilation of the topic of discussion.

Where the sales of the nine large trading companies in last September's interim compilation increased by 28 percent over the same period the previous year, Sumitomo Shoji increased by 42 percent. When these increases in sales of this trading company were broken down into respective areas, chemicals and fuel increased by 74 percent, machinery by 46.5 percent, metals by 30.6 percent, and food and food products by 22.1 percent, and the chemicals and fuel area showed an overwhelmingly greater increase.

The increase in the fuel business is particularly large even within its own area, and sales of fuel which totaled 479 billion yen for the September 1979 period increased 91 percent in the September 1980 compilation to 905 billion yen. This shows how much this expansion in Sumitomo Shoji's trade has come from the increase in its oil trade.

"Afraid to take a risk." The trade policy of Sumitomo Shoji until very recently was categorized in this manner. An integrated trading company, like a goby, will stick its neck out in any direction in which there is possible trade. It will handle cheap items such as instant noodles or pantyhose to very high priced items of the nuclear reactor and missile class.

In such a situation, Sumitomo Shoji stood out in that it absolutely would not involve itself in any business where great risk was involved. This company was well fixed where real estate was concerned, and because of this fixed income, it could survive without having to venture into risky businesses, which was one factor dictating such a practice. In addition, the Sumitomo family has had a long standing policy of "no pursuit of floating gains," and it has a practice of not engaging in business of poor performance as other trading companies.

Now, the trading practices of Sumitomo Shoji underwent a complete turnabout last year. Particularly in the energy area, Seiji Hasegawa, chief of the Fuel Headquarters, became the central figure in developing trade methods completely different from what Sumitomo had conducted in the past and even extending its hands to become a trader in crude oil through the medium of its American Sumitomo Shoji as the prime figure. The interim compilation of September showed its three-country trade to be 2.4 times the previous year's total, and this performance clearly describes the all-out trading of crude oil by Sumitomo Shoji on a three-country basis.

Sewing Up Gaps Left by Retreat of the Majors

The second oil crisis accompanying the Iran revolution was the opening which prompted the integrated trading companies to enter the energy field wholeheartedly. The power of the international oil capital (majors) began to decline ever since the Iranian revolt, and direct sales (DD) of crude oil on the part of the oil producing governments increased. As a result, the Japanese oil refiners who had been buying their crude oil from this international oil capital lost their supply source for crude oil in the guise of the majors, and they had to go out and procure the oil themselves.

Such being the case, there was no one with enough authority to fly to Iran or Saudi Arabia and purchase their oil, and they were rather low in funds. Excluding Shukko Kyosan, which had had company members in residence in the Middle East ever since the first oil crisis, nearly every trading company had no recourse but to contract with the trading companies to import their oil.

Import of crude oil was right up the alley of the trading companies because they had a number of company people living in the oil producing countries who could also speak the language. At the same time, they had connections with government inner circles, and they managed to get fast decisions. Furthermore, these trading companies were blessed with enormous capital, and the financially hard-pressed oil refining companies even could use some of this trdining company's financial assets. The volume of crude oil handled by these trading companies increased sharply inthis manner, and the fraction of crude oil supplied by these trading companies and foreign oil companies varied in the manner shown in the following table:

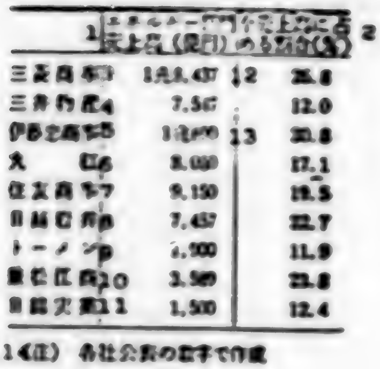
	(1) 外資石油会社	(2) 商社
(3) 50年度	62.6%	17.5%
51 〃	62.6	22.1
52 〃	58.7	23.9
53 〃	54.7	26.4
54 〃	43.0	32.4

Key: 1. foreign oil companies 2. trading companies 3. JFY 19--

Data for JFY 1980 are not established as yet, but the volume fraction handled by these trading companies had approached 40 percent, and there is every indication that the share of the crude oil market on the part of the foreign oil companies may drop below 40 percent. As long as we limit ourselves to just crude oil supplied to Japan, it can be said that the powers of the majors and the trading companies are headed in opposite directions.

Kyushu Oil had been purchasing Iranian crude oil from British Petroleum so that it was quickly cut off from the majors' supply at an early stage. This was why this company started to buy its oil from the trading companies and it now "lets the trading companies fight among themselves as they supply us with most of the oil we purchase" (top echelon member of this company).

Ever since the Iranian revolution, the trading companies have been trying to establish themselves as the "Japan made majors," and the sales total of the nine large trading companies in the statistics for the September quarter of 1980 was as follows:



	1 エネルギー部門の売上高（億円）	総売上に占める割合（％） 2
三菱商事 3	1兆8,437 12	25.8
三井物産 4	7,567	12.0
伊藤忠商事 5	1兆8,900 13	20.8
丸紅 6	8,000	17.1
住友商事 7	9,150	19.5
日商岩井 8	7,457	22.7
トーメン 9	4,900	11.9
兼松江商 10	3,580	23.8
日綿実業 11	1,500	12.4

14（注）各社公表の数字で作成

KEY:

1.	Sales in the energy area (100 million yen)	8.	Nissho-Iwai Co., Ltd.
2.	Fraction of total sales (%)	9.	Tomen
3.	Mitsubishi Corporation	10.	Kanematsu Gosho, Ltd.
4.	Mitsui and Co., Ltd.	11.	Nichimen, Co., Ltd.
5.	C. Itoh and Co., Ltd.	12.	1.8437 trillion
6.	Marubeni	13.	1.890 trillion
7.	Sumitomo Shoji Kaisha, Ltd.	14.	(Note) compiled with data supplied by each company

The order of these trading companies is by total sales, but the total sales in the energy area differ widely. The order is Mitsubishi first, Itoh and Company second, Sumitomo third, Marubeni fourth, Mitsu fifth, Nissho-Iwai sixth, Kanematsu-Gosho seventh, Tomen eighth, and Nichimen Company ninth. When ranked according to fraction of total sales, the four companies of Mitsubishi, Kanematsu-Gosho, Nissho-Iwai, and Itochu all showed over 20 percent making it evident that these trading companies are concentrating on energy.

Conversely, Mitsui and Company, Tomen, and Nichimen Company run about 12 percent, demonstrating that they are considerably behind in the energy picture. In the particular case of Mitsui and Company, it lags behind at about 5 percent in the energy field, and it is in no position to attack Mitsubishi or Itochu.

Mitsubishi's Potential Leads All Others

There is considerable background to Mitsubishi's rise to eminence in the area of energy. One of these is the fact that of all the large trading companies, Mitsubishi alone has an "oil import authority." While an authority such as oil import authority is nonexistent, the Ministry of International Trade and Industry has been applying the oil industry laws to its own ends to allow only the oil companies and Mitsubishi alone to import oil, and this is the origin of this term. There is no question but that the oil import authoirty held by Mitsubishi has been a responsible factor for its active participation in oil deals.

The other trading companies are limited to some substitute means of importing oil, and the odd situation has resulted in that "it is the trading companies which make the money transaction with the oil producing companies, but the oil companies are the ones engaged in the handling of the oil" which defies common sense.

One other factor is that Mistubishi Shoji had been actively engaged in oil transactions even in the days when oil was plentiful. A large number of people were engaged for a long time in nurturing Mitsubishi Headquarter's history in oil. Vice-president Keizoryo Yamada is the top mentor of this company's energy area, and he has many connections with the majors. There are the No 1 Fuel Department (department head, director Kiyoshi Hama) which handles oil and the No 2 Fuel Department (department head, director Tadao Matsuda) dealing with LNG which come under this headquarters, and these areas are being controlled by able oil men.

In addition, Mitsubishi Shoji has long been supplying Mitsubishi Oil with its supplies of oil, and this relationship has added stability to Mitsubishi Shoji's energy situation.

Companies Developing Independent Strategies

Itochu (C. Itoh and Company) also has a long history in the energy area. On the other hand, it made a major slipup in its handling of the Toa oil problem and the former chief of its energy headquarters director Tomoiki Takahara was shifted to a post as resident manager of Toa at Cairo last spring in taking responsibility for this slipup.

Presently, vice-president Minosuke Matsui is acting as provisional head. Vice-president Takao Kanai who had retired as president of Toa Oil and had served a stint at the Ministry of International Trade and Industry is also an able man in the oil area.

Although Itochu met with disaster in the Toa Oil case, it was highly successful in other ventures including Indonesian oil development. This company is now seeking the LNG project. Mitsubishi Shoji realizes a profit of more than 20 billion yen from its Brunei based LNG fields, and Nissho-Iwai and Mitsui Bussan also are promoting LNG development. This is why Itoh and Company which ranks No 2 in the energy area is in dire need of engaging in the LNG project, and president Seika Tozaki himself makes frequent trips to producing countries such as Katar to promote this cause.

Nissho-Iwai is next in line to Mitsubishi and Itochu in its activities in the energy area. This company will import 8 million tons of LNG from its Indonesia plant this year. It surpassed long standing Mitsubishi and vaulted forth to No 1 rank in LNG import.

The energy area is headed by chief of energy headquarters, director Eichiro Koizumi while developmental problems such as those involving development of the Senkaku Islands area are being handled by director Masao Araki. The volume of oil this company handles is not very great, but it is also planning new developments in Canada where LNG is concerned, and there are prospects for considerable increase in its LNG capacity in the future.

Its sales volume also is not that great, but Kanematsu-Gosho is all out in the energy area. The fraction of total sales accounted for by energy is second only to Mitsubishi indicating its large efforts in the energy area despite it being one of the small training companies.

This company has the advantage of possessing a number of product tanks within the country. It developed from small trade involving the narrow areas between the large trading companies to emerge as a major business.

President Iwao Matsurra died suddenly last November and director Hideo Suzuki ascended to the presidency in December. Mr Suzuki had been handling energy affairs from the time he was a director, and the Fuel Headquarters under chief Keiji Oda has begun to function actively with the provisional leadership of president Suzuki.

Marubeni is concentrating on DD crude oil and LPG import. Its energy sales ranked below Sumitomo Shoji in the interim rankings of September, but this company is more capable than Sumitomo where oil trade is concerned. The energy area is being handled by vice-president Kazuo Haruna who aspires to be the next president, and director Isao Hiroe head of the Energy Headquarters handles the actual work, and this head himself is making the rounds of the oil producing companies in order to handle top trade talks.

Mitsui and Company retightened its belt last year. It reorganized its energy setup, and director Kanji Kawanishi became head of the Energy Headquarters and joined in concert with vice president Shinzo Tsutsui to promote sales strategy to overtake Mitsubishi. It is aiming for expanded crude oil and LNG dealings involving outfits such as the Iranian National Oil which has deep roots in Iranian oil.

Tomen and Nichimen are continuing their strategies to make up in the 80's their delays of the 70's.

2267
CSO: 4105/209

NATION'S OIL STRATEGY FOR 1980'S

Tokyo JAPAN PETROLEUM & ENERGY WEEKLY in English Nos 29, 30; 20, 27 Jul 81

/For Parts 1-4 of this article please see JPRS 78806, 21 August 1981 No 132 of this series pp 7-20/

/20 Jul 81, pp 4-7/

/Text/

V. Functions and Nature of the Japanese Oil Enterprises (continued)

(1) Appraisal of the Petroleum Enterprise Law (continued)

It remains a fact, however, that free competition has not been fully implemented under the law, and as a result, even today the so-called "self-reliance principle" has not been thoroughly applied.

(2) Measures for the Age of Qualitative Substantialism

The above discussions notwithstanding, the oil industry today is clearly in a transitional phase from quantitative expansionism to qualitative substantialism. The oil enterprises are thereby pressed to cope with this transformation taking place in the industry.

Needless to say, in principle, it is up to the oil enterprises themselves to exert efforts towards this transformation. Yet in numerous cases it is difficult to deal with such problems on individual efforts alone. From this point of view, group formation has been promoted within the industry. But in a period of qualitative substantialism, even more diverse measures are demanded. In addition to group formation, it is most desirable to develop multifaceted, multilayer cooperative and coordinative relations between individual companies in each area of operations (such as crude oil purchase, residual oil cracking, new energy development, etc.). Indeed such moves are gradually being taken today. And it will be imperative for the government to lend appropriate support to such movements.

With regard to refineries connected to industrial complexes - referred to as "combinato refineries" -, it is commonly considered that their continuation should be sought on the principle of coexistence and coprosperity with the demand side. Depending on the circumstances, however, the need is also seen for these refineries to depart from purely supplying their fuel oil/feedstock to neighboring industrial complexes.

In addition, in terms of mid- and long-range energy demand trends, it is indispensable to continue making efforts toward "overall energy enterprise formation."

(3) Streamlining of the Business Management Environment

For the foreseeable future, oil will continue to occupy the prime position in the energy supply picture, and the oil enterprises will be compelled to bear the heavy onus in numerous aspects such as oil development, stockpiling, etc. As a result, sufficient consideration must be given to the adjustment of the business management environment as needed to permit the formation of "strong oil enterprises."

In this respect, it is only natural that rises in crude oil prices be passed on in appropriate measure to the consumer through proper product price increases. For ethical considerations, so-called "me-too" price hikes, however, must be avoided; and yet due recognition must be paid to the fact that corporate efforts alone by no means have been able to cope with the crude oil price rises implemented since the first oil shock.

In tandem with rises in oil prices, a stupendous rise has also been seen in the dollar usance figure with its balance totaling 3-4 trillion yen, and gains or losses resulting from fluctuations in the yen exchange rate have been abnormally high. Not only do such trends render normalization of corporate management extremely difficult, they also serve to give rise to erroneous judgments by the general public concerning the oil enterprise management situation. To cope with this state of affairs, a variety of countermeasures are seen to be desirable, such as creation of a reserve fund system, a yen shift from dollar usance, etc.

In addition, at present a broad variety of taxes are levied against oil. The need exists for constant review of the suitability of the degree of such impositions, the uses for which such moneys are spent, etc.

(4) Crude Oil Price Gap

Since the Islamic Revolution in Iran, a breakdown has taken place in the earlier uniform price structure among OPEC members. Owing to the fact that the major portion of crude originating from Saudi Arabia - which maintains the lower end in the new price structure - is supplied to Japan through the so-called "Aramco route," a substantial price gap has opened between the Aramco Group oil companies and those of the Non-Aramco Group. This gap, moreover, cannot be overcome through the efforts of the oil companies alone, and fears have arisen of the loss of competitivity.

However, the countermeasures available to deal with this problem are quite limited:

(i) At present, a return to a uniform OPEC pricing system is fundamentally outside the means of the oil-consuming nations. Furthermore, a considerable length of time is seen to be necessary before such a return could be effected.

(ii) The possible adjustment of the crude oil procurement costs through such means as institution of granting "adjustment funds" gives rise to fears of fierce protests on charges of administrative intervention. Such a move is also feared to produce adverse effects on crude oil supplies to Japan through the major oil companies, as well as on the negotiating stance assumed by the Japanese oil companies in their dealings with the oil-producing nations. In general, the implementation of adjustment funds is feared to encourage sharp increases in crude procurement costs.

(iii) Engaging in administrative intervention in product pricing as a means of ensuring the survival of enterprises saddled with higher crude oil procurement costs can be expected to invite strong public criticism, and such a measure is likely to be permitted only in the event of an extreme emergency.

The solution to this problem is thus by no means simple. The only available alternatives are either to strive to reduce procurement costs through normalization of the oil companies' crude oil selection or to urge the oil-producing nations to reduce their premiums. Otherwise, there would be no appropriate measure except securing crude oil from those oil-producing nations maintaining a lower price policy and equitable allocation of such crude among companies involved.

Note: It has been pointed out that the petroleum tax - currently an ad valorem tax - is creating an increasingly larger price gap between the Aramco Group companies and the Non-Aramco Group companies, which demands correction.

VI. Topics Related to Technology, Plant Facilities and Plant Siting

(1) Increased Supply of Middle Distillates

The greatest topic of concern in the areas of technology and plant facilities today is the achievement of expansion in middle distillates supply. As short- and mid-range measures, the need is seen for aggressively carrying out improvements in the operating conditions of existing facilities, introduction of residual oil cracking facilities based on existing technologies, review of the current product specifications, etc.

Note: In areas other than plant facilities and technology, among measures under consideration are conversion from middle distillates to other products where middle distillates are currently being used, conversion of crude oil burning to fuel oil C burning, import of middle distillates, export of fuel oils, etc.

Note: On the subject of conversion of crude oil burning to fuel oil C burning, it is pointed out that certain limitations exist relating to environmental and cost factors.

(2) Promotion of Residual Oil Cracking for Increased Production of Middle Distillates

Mid- and long-range measures for increasing supply of middle distillates include R&D on residual oil cracking and construction of cracking facilities. In R&D, cooperative work is already being carried out by related enterprises, with completion of such R&D anticipated over the next year or two.

A major topic for the future is the promotion of plant and equipment investments aimed at commercialization of such technological R&D. Viewed in the long-run, the most effective incentive for promoting such plant and equipment investments may be said to make products produced from such facilities - i.e. middle distillates - attractive ones in terms of profit generation.

However, sudden implementation of such measures is certain to invite strong public criticism. From this standpoint, on the subject of commercialization of residual oil cracking, it is seen to be necessary to follow a "multi-visional" policy during the period in which efforts are continued to introduce a price mechanism-activated incentive, until such efforts bear fruit.

(3) Added Flexibility in Facilities Regulations

As the period of quantitative expansionism now approaches its end, that part of the Petroleum Enterprise Law which deals with regulations on atmospheric crude oil distillation facilities creates no problems owing to the loss of the desire by refiners for capacity expansion of facilities. The part of the law relating to reforming and cracking facilities would be applied to permit maximum flexibility and elasticity, in principle. From the standpoint of maximizing the supply of middle distillates, it will be necessary to take some directional adjustments of these regulations to meet the new situation calling for an increased production of middle distillates.

(4) Measures to Deal with the Oil-Producing Nations

Looking ahead, it is most desirable to take aggressive actions to deal with the oil-producing nations through the technology and plant facilities aspects. First, it will be necessary to promote transfer of downstream operations technology to these nations. While transfer of such sophisticated Japanese technology as residual oil cracking, desulfurization and computerized process control can contribute to economic development in the oil-producing nations on the one hand, it is believed that this transfer will create the possibility of reasonable product imports into Japan, on the other. Much expectation is held in this respect in the "Oilman Center" (tentative name) to be established shortly.

Note: Other related topics for the future include attainment of overseas sites for residual oil cracking facilities and international development of Japan's oil refining industry.

The second action which can be taken is cooperation with oil-producing nations toward quality improvement in extra-heavy crude. While such improvement adds greatly to a stable crude oil supply, carrying out such improvement in the oil-producing nations has especially large merit in terms of the economy of scale derived therefrom and the procurement of inexpensive hydrogen gas. For this reason, aggressiveness in this direction by the oil companies and governmental support and assistance are highly desired.

(5) Development and Introduction of New Fuel Oils

The majority of new fuel oils - liquefied coal oil, shale oil, tarsand oil, alcohol fuel, etc. - can be mixed with oil products and used. In view of their potential contribution to the expansion of oil supply flexibility, their development and introduction must be wholeheartedly promoted.

/27 Jul 81, pp 7-9/

VII. The Role of Price Mechanism

(1) Fluctuations in the Oil Product Pricing Structure

In principle, the Japanese oil product pricing structure incorporates higher pricing for "clean products" and lower pricing for "dirty products." At certain times, however, salient fluctuations are seen. For example, from ca. 1955 until the late sixties gasoline long continued to bring a price below that of middle distillates. Also, following the first oil crisis, full-scale governmental intervention was carried out in the pricing system and middle distillate pricing was set at an extremely low level. Most recently, such forceful intervention in the product price structure has been averted, with the emphasis instead being placed on conducting checks aimed at eliminating opportunistic price hikes. In addition, it is frequently indicated that as a result of the long-term continuation of price rises by uniform margins for all products, the fuel oil prices have risen to a relatively high level, thereby causing fuel oil C to lose its competitiveness vis-a-vis alternative energies, giving rise to the so-called "fuel oil C bottleneck."

It has also been pointed out that, while demand for middle distillates is increasing, the incentive to supply such fuels is not keeping pace in terms of price level.

(2) Views on Product Prices

The following viewpoints may be set forth in considering the petroleum product price levels or price structure:

(i) Supply-Demand Conformity

At times such as the present when the product-by-proudct demand imbalance grows marked in relation to supply-demand trends, it would be most effective for supply-demand conformity to be determined by the pricing mechanism.

(ii) Consideration of People's Livelihood

The opinion is strongly voiced that consideration should be given to implementing a policy on the price level of items deeply affecting the people's living modes, such as kerosine.

(iii) Crude Oil Supply Security (Attractiveness of the Japanese Market)

If oil product prices are kept under rigid restraint, then the Japanese market will inescapably lose its attractiveness and the major international oil companies will lose their desire to keep this market in full supply.

(iv) Financial Structure of Oil Enterprises

An unnaturally imposed lowering of oil product prices will weaken the financial structure of oil enterprises, thereby preventing activities in such areas as oil exploration and development and oil stockpiling.

(v) Coexistence with Demand Industries

Due consideration should be given to the problems of concern by the demand industries (e.g., their competitiveness on the international market) and a policy of prosperous coexistence should be pursued.

(3) Supply-Demand Conformity Based on the Price Mechanism

When considering the appropriate oil product pricing structure for the future, it is necessary to give weight to the viewpoint that supply-demand conformity should be based on the price mechanism. In particular, much emphasis should be placed on the price mechanism in order to overcome the "fuel oil C bottleneck" arising under the marked imbalance in supply and demand and to expand the supply of middle distillates.

From this standpoint, in normal times it is highly desirable to pay utmost attention to the market conditions; and in times of market tightening it is best to avoid intervention in the pricing system - even while checks continue to be conducted to eliminate opportunistic price hikes. If intervention into the product price structure were carried out, then an incentive other than in the price mechanism would be needed in order to promote the supply of middle distillates. A strong governmental assistance policy would become necessary.

Note: It has been remarked that if good-quality fuel oil C for power generation, for example, were supplied at a price on a par with that of an equivalent quality crude oil, the possibility of a demand increase for fuel oil C would arise. This argument is refuted, however, by those who believe that major difficulties would be engendered from the supply cost aspect.

(4) Relation with Imported Products

One of the foremost problems encountered when considering petroleum product prices is the question of competitiveness against imported products. In particular with items largely supplied through imports, the view is expressed that competitiveness with the imported items must be promoted and a price structure created which reflects trends in the international market price.

On the other hand, oil products are multi-products, and even if competition from imported products becomes intense in a specific area, there is a limit to the production cutback which could be carried out on the item concerned; it would be necessary to obtain compensation from other products for the losses incurred from such competition. In this respect, if imported products are permitted to have too great an influence, then the potential for great turmoil arises in the product price structure. Furthermore, it is unrealistic to consider carrying out totally free product imports at a time when appropriate government controls are being sought on oil imports including both crude oil and products (incl. LPG).

Still, in cases such as that of naphtha - the demand industry facing harsh international competition - due consideration must be given to international pricing from the standpoint of the oil industry's coexistence with the demand industry. For example, while on the one hand mutually guaranteeing domestic consumption and stable supply for that portion of the product suppliable domestically, at the same time discussions among all parties concerned should be continued on the pricing of the product, with optimal consideration also given to the international pricing; for the imported portion over and above the domestic production, one possibility would be to implement a method of free selection on the demand side.

Note: With regard to naphtha imports, on the one hand the opinion is expressed that such imports should be completely free and the domestically supplied product price should be made to reflect the international price. On the other, the opinion is also heard that the oil companies should provide a uniform supply of domestically supplied product and imported product in view of the circumstances under which industrial complex-affiliated refineries came into being, etc.

Conclusion

As seen above, the new oil policy or new oil industry structure is in a reconstructional transition phase from "quantitative expansionism" to "qualitative substantialism." Furthermore, the design envisioned for the future will likely require revisions in accordance with changes in the situation. In this respect, at present there is an indispensable need for distinguishing between "prudence" and "boldness." For example, it seems most appropriate to avoid making hasty revisions in the Petroleum Enterprise Law while continuing to undertake careful study of possible future implementation. Also, with respect to the oil product price structure, it would seem to be necessary to give full weight to the view that supply-demand conformity should be based on the price mechanism, and its realization should be aimed for in earnest.

Also, in view of the fluidity, instability and uncertainty surrounding various oil-related issues, it would be best to adopt policies or schemes offering maximum "elasticity." In this respect, the present intermediate report leaves many items requiring much deeper consideration, and other subjects -- such as the relation between the topics discussed and development and distribution questions - must also be studied.

The study group intends to continue its careful investigation of the various issues discussed thus far, in order to make a contribution to the creation of an oil strategy for the 1980's. Our guiding principle as we proceed will follow the words of the late Ichiro Nakayama:

> "What should the government do? And what should the government not do? Both of these aspects have a vital role in economic development."

(End)

CSO: 4120/313

PETROLEUM ALTERNATIVES DEVELOPMENT STEPPED UP

Tokyo JAPAN PETROLEUM & ENERGY WEEKLY in English Vol 16, No 30, 27 Jul 81 pp 1-4

/Text/

According to the latest available Ministry of International Trade and Industry forecast dated November 28, 1980, Japan's "alternative energy" supply target for fiscal 1990 is set at 6 million barrels per day in oil equivalent, or 50 percent of total primary energy supply (JPEW Vol.15, No.48, dd. December 1, 1980 - p.3), as quoted below:

	Oil Equivalent		% share of total
	million kl	1,000 b/d	primary energy
Coal	123.0	2,120	17.7
Nuclear	75.9	1,308	10.9
Natural gas (incl. LNG)	71.0	1,225	10.2
Hydraulic power	31.9	550	4.6
Geothermal energy	7.3	126	1.1
Others: Liquefied coal	22.6	389	3.2
Solar energy	6.5	112	0.9
Others	9.4	162	1.4
	38.5	663	5.5
Alternative energy total	ab. 350	ab. 6,000	50.0

The "petroleum alternatives" aimed at by programs outlined below for production by fiscal 1990 are included in the 9.4 million kl (162,000 b/d) in "Others" of the foregoing target.

The word "petroleum alternatives" as used here can be defined as liquid fuels to be produced to supplement conventional oil products such as gasoline and middle distillates, supply and distribution of which will be carried out through the existing oil product marketing and distribution system.

Japan Oil Shale Engineering Co., Ltd.

Japan Oil Shale Engineering Co., Ltd. was established on July 7, 1981, for the purpose of promoting R&D on oil shale resources development.

The new company was established under the Japan National Oil Corporation's five-year plan as launched this fiscal year to undertake promotion of technological research and development for the utilization of oil shale as one of the important petroleum alternative energy sources. The world recoverable reserves of oil shale are estimated at 190 billion barrels versus 660 billion barrels for oil.

The present plan calls for construction and operation of a 300-500 ton-per-day pilot plant during the fiscal 1983-1985 period with an estimated total capital expenditure of ¥14 billion ($61 million), of which ¥1,246 million ($5.4 million) has been appropriated in the JNOC budget for spending in fiscal 1981.

Details of the new company, its executives and participating companies are shown below:

Head office
Dai-ichi Toyo Kaiji Bldg.
1-16-3 Nishi-Shimbashi, Minato-ku, Tokyo 105
Telephone: Tokyo (03) 595-0881

Executives
President: Toshiharu Uchida, director of Nippon Steel Corp.

Managing director: Yoshio Kawashima, managing director of the Petroleum Producers Association of Japan

36 Participating companies (with the mark * indicating less than 1%)

6 Iron & steel firms	% share of equity capital
Nippon Steel Corp.	10.0
Nippon Kokan K.K.	10.0
Kobe Steel, Ltd.	6.5
Sumitomo Metal Industries, Ltd.	*
Kawasaki Steel Corp.	*
Japan Steel Works, Ltd.	*
11 Oil firms	
Idemitsu Kosan Co., Ltd.	6.5
Nippon Mining Co., Ltd.	6.5
Daikyo Oil Co., Ltd.	4.0
Maruzen Oil Co., Ltd.	4.0
Mitsubishi Oil Co., Ltd.	4.0
Japan Petroleum Exploration Co., Ltd.	*
Kashima Oil Co., Ltd.	*
Kyodo Oil Co., Ltd.	*
Kyushu Oil Co., Ltd.	*
Taiyo Oil Co., Ltd.	*
Teikoku Oil Co., Ltd.	*

6 Heavy industries firms	% share of equity capital
Mitsubishi Heavy Industries, Ltd.	10.0
Mitsui Engineering & Shipbuilding Co., Ltd.	6.5
Ishikawajima-Harima Heavy Industries Co., Ltd.	*
Kawasaki Heavy Industries, Ltd.	*
Hitachi Shipbuilding & Engineering Co., Ltd.	*
Sumitomo Heavy Industries, Ltd.	*
6 Trading firms	
C. Itoh & Co., Ltd.	*
Marubeni Corp.	*
Mitsubishi Corp.	*
Mitsui & Co., Ltd.	*
Nissho-Iwai Co., Ltd.	*
Sumitomo Corp.	*
7 Other firms	
Chiyoda Chemical Engineering & Construction Co.	6.5
Onoda Cement Co., Ltd.	6.5
Mitsubishi Mining & Cement Co., Ltd.	6.5
Fuji Electric Co., Ltd.	*
Japan Oil Engineering Co., Ltd.	*
JGC Corp.	*
Toyo Engineering Co., Ltd.	*

Research Association for Petroleum Alternatives Development (RAPAD)

Twenty-three companies in the field of petroleum, fermentation, chemicals, engineering and others jointly established the Research Association for Petroleum Alternatives Development (RAPAD) on June 5, 1980, in accordance with the Mining & Manufacturing Industries Technology Research Association Law. (Among the other research associations of similar nature are: Research Association for Residual Oil Processing (RAROP) and Research Association of Subsea Oil Production System.)

The formation of the RAPAD is to promote R&D on new liquid fuels for early commercialization through:

- Production of hydrocarbon oils (such as gasoline and middle distillates equivalent) or oxygen-containing fuel oils (which can be blended into motor gasoline - known as "gasohol") from synthesis gas, i.e. CO and H_2.

- Refining and upgrading of tar sand bitumens and shale oils.

- Biomass conversion for fuel ethanol fermentation.

The foregoing three-tier R&D programs are being implemented under the seven-year plan which started in fiscal 1980 with an estimated total capital expenditure of ¥38.8 billion ($170 million), as shown below.

Government funds are provided to finance two-thirds of the total expenditure, with the remaining one-third shouldered by the private sector.

	Ymillion
(1) Synthetic fuels from synthesis gas:	
. Production of hydrocarbon fuels	12,246.6
. Production of oxygen-containing fuel oils	3,892.9
	16,139.5
(2) Upgrading of tar sand bitumens and shale oils:	
. Tar sand	10,046.9
. Shale oil	3,173.5
	13,220.4
(3) Biomass conversion	
. Ethanol fermentation from cellulose hydrolysis	8,406.5
. Continuous ethanol fermentation using immobilized yeast cells	1,006.6
	9,413.1
Total	38,773.0

Details of RAPAD, its executives and participants are shown below:

Secretariat office
Kojima Bldg.
1-4-2 Uchi Kanda, Chiyoda-ku, Tokyo 101
Telephone: Tokyo (03) 233-3531

Executives
Chairman: Teruo Noguchi, president of Koa Oil Co.
Executive managing director: Goro Oda

23 Participating companies:

9 Petroleum refining firms

Asia Oil Co., Ltd.
Daikyo Oil Co., Ltd.
Idemitsu Kosan Co., Ltd.
Koa Oil Co., Ltd.
Maruzen Oil Co., Ltd.
Mitsubishi Oil Co., Ltd.
Nippon Mining Co., Ltd.
Nippon Oil Co., Ltd.
Showa Oil Co., Ltd.

4 Fermentation firms

Ajinomoto Co., Ltd.
Godo Shusei Co., Ltd.
Kyowa Hakko Kogyo Co., Ltd.
Sanraku-Ocean Co., Ltd.

3 Chemical firms

Chisso Corp.
Kansai Paint Co., Ltd.
Sumitomo Electric Industries, Ltd.

7 Engineering firms

Chiyoda Chemical Engineering & Construction Co., Ltd.
Hitachi, Ltd.
JGC Corp.
Kurita Water Industries, Ltd.
Mitsubishi Heavy Industries, Ltd.
Sumitomo Jukikai Envirotech Inc.
Toyo Engineering Corp.

CSO: 4120/314

EARLY INTRODUCTION OF OIL STANDARD PRICES DELAYED

Tokyo JAPAN PETROLEUM & ENERGY WEEKLY in English Vol 16 No 33, 17 Aug 81 pp 1-4

/Text/

The establishment of government-set standard selling prices of certain products, originally scheduled to be decided at the forthcoming August 20 meeting of the Petroleum Council (JPEW, August 3), an advisory body to International Trade and Industry Minister Rokusuke Tanaka, now appears to be postponed at least till mid-September, thereby killing industry hopes that the standard prices would be implemented as of September 1 as initially planned.

Under the originally proposed schedule, the September 1 implementation was to be effected to support a rise in petroleum product prices and rescue the petroleum refining and primary distribution industry from its current financial predicament. However, critical reaction from the consumer sector - in particular from the electric power and iron & steel industries - far exceeded expectations and criticism of the oil industry was rampant even within the Petroleum Council itself, which called for greater self-help efforts on the part of the industry in improving its own structure. As a result of this combined pressure, the decision on standard prices was put off for another month until the council reconvenes in mid-September.

With the question of establishing standard prices temporarily shelved, the August 20 meeting is now expected to focus attention on two other issues: (i) downward revision by approximately 10 percent of the Petroleum Supply Plan for fiscal 1981, and (ii) seeking a structural reform of the industry through such measures as elimination of excessive facilities and reorganization of the downstream sector of the Japanese oil industry into a smaller number of companies.

As part of its investigation into measures aimed at saving the oil industry, the Petroleum Council held a subcommittee meeting with members of the industry on August 12 to hear their opinions on the subject. At this meeting, Petroleum Association of Japan chairman Tokio Nagayama expressed his opinion on long-term measures to be taken in the following terms:

(1) Marketing and primary distribution companies, currently numbering 13, are too numerous and should be reduced to a smaller number to eliminate excessive competition among companies.

(2) Approximately 10 percent of the existing refining capacity (5,940,360 barrels per stream day) are superfluous and should be eliminated.

(3) Because the elimination of the superfluous refining capacity falls within the scope of the Antimonopoly Act, MITI's advice should be sought on the issue.

In response to these suggestions, the subcommittee voiced its opinion that the efforts taken by the industry itself to date were sorely insufficient. Furthermore, on the question of regrouping marketing/primary distribution companies, the subcommittee suggested that the current total number of 13 companies should be reduced to half, enabling each company to have a market participation of 10 percent or more, or, if mergers are deemed infeasible, then formation into groups should be taken into consideration.

What is now making the matter complex is the fact that the yen, which has been on the downward trend for some time and has brought a huge amount of foreign exchange loss to the Japanese oil industry, started quite recently to give signs of appreciation as shown below, much to the embarrassment of the oil industry, thereby raising fears among oil companies that they may lose the grounds for introducing standard selling prices should the yen continue to appreciate rapidly.

Last week the dollar plunged and in fact on Thursday (August 13) it hit a one-month low of ¥229.50 - the lowest since July 13 when it fell ¥228.30. A small recovery was seen on Friday, but as stated above it appears to be on the downward trend, at least for the immediate future. Trading was extremely heavy on Tuesday (August 11) with turnover totaling $1,616 million - the third highest after June 16 this year when $1,671 million was recorded.

		T.T.	T.T.	Interbank Rate		
		Selling	Buying	Middle	Low	High
August	3	242.70	240.70	241.70	241.00	243.80
	4	248.40	246.40	247.10	241.50	247.40
	5	245.70	243.70	240.00	239.30	245.60
	6	241.10	239.10	240.50	238.70	241.10
	7	240.00	238.00	239.00	236.00	239.20
	10	237.70	235.70	237.30	235.50	237.70
	11	237.75	235.75	236.80	236.50	237.65
	12	236.80	234.80	234.00	233.30	236.25
	13	231.80	229.80	230.20	229.50	231.70
	14	234.50	232.50	233.80	232.60	234.40

Coinciding with the opening on August 10 of the UN Conference on New and Renewable Sources of Energy in Nairobi, Kenya, a 1,000-KW solar thermal electric power generation pilot plant - the first pilot plant of this magnitude to go onstream in the world - started full-scale operation on August 6 at Nio-cho, Kagawa Pref. in Shikoku, supplying the electricity thus generated to Shikoku Electric Power Co. for consumption by local citizens.

Two pilot plants - of the Central Receiver System and Plane-Parabolic System (each having an output capacity of 1,000 KW) - had been completed in March of this year at an estimated total cost of ¥10 billion ($43 million) and have been in test operation since April. The one which has just started full operation is the Central Receiver System, while the Plane-Parabolic System is scheduled to follow suit on August 18.

The Electric Power Development Co. (EPDC) had been commissioned by the Industrial Science and Technology Agency of the Ministry of International Trade and Industry to conduct the R&D and construction of the two pilot plants through the end of fiscal 1980 (March 31, 1981), while since April 1981 EPDC has been commissioned by the New Energy Development Organization (NEDO) to carry out operation of these plants for a period of about two years to collect the operating data. Meanwhile, two domestic manufacturers of the plant and equipment - Mitsubishi Heavy Industries for the Central Receiver System and Hitachi, Ltd. for the Plane-Parabolic System - have been commissioned by NEDO to check the performance and durability of each equipment.

The pilot plant of the Central Receiver System consists of a total of 807 geometric linkage type heliostats, each composed of 16 plane mirrors 1 m x 1 m (3.28 ft x 3.28 ft), 5 mm thick and made of white sheet glass, which are controlled by means of a microcomputer for automatic tracking of the sun. The solar light received by these reflection mirrors is concentrated at the heat receiver installed at the top of a 69-meter (226 ft) tall tower. In the Plane-Parabolic System, the sunlight falling on a total of 2,480 plane mirrors (4.5 m^2, 48 ft^2 each) is reflected and concentrated on cylindrical parabolic mirrors, from which it is further concentrated at the focal line of the parabolic mirror to heat the water to obtain superheated steam.

The solar thermal power generation pilot plant study project at Nio-cho constitutes part of the "Sunshine Project," an ambitious national technological development program launched in 1974 by the Industrial Science and Technology Agency, envisaging utilization of inexhaustible, pollution-free solar and geothermal energy, coal gasification/liquefaction, and hydrogen energy, by the year 2000. The other solar energy development program under the Sunshine Project includes R&D on photovoltaic power generation system and solar heating/cooling and hot water supply system. A total national budget of ¥7,961 million ($35 million) has been appropriated for expenditure in fiscal 1981 for the entire solar energy development program (JPEW, January 19, 1981 - pp. 7 and 8).

With a veiw to consolidating Japan's economic security and at the same time safeguarding the economic interests of the entire non-communist world, the Japanese government has decided to give all-out support to a project to construct a 1,500-km (930-mile) crude oil pipeline running through the Arabian Peninsula from north to south, with an estimated total expenditure of $4,000 million - a plan which has been advocated by the Omani government since the outbreak of war between Iran and Iraq in September 1980. This decision by the Japanese government was made because Saudi Arabia, which holds the key to realization of the project and aims at uninterrupted flow of its oil to the West, has informally sounded out Japan on the possibility of winning its cooperation in the pipeline project.

Earlier this year, Omani Vice Foreign Minister Jousuf Al-Alawi, who visited Japan to request Japanese cooperation in constructing a new oil pipeline in his talks with the Foreign and International Trade and Industry Ministers.

Plans are now under way for the Japanese government to shortly set up a new machinery, tentatively called Gulf Pipeline Development Council, with joint participation by private industries including three leading trading firms - Mitsubishi Corp., Mitsui & Co. and Marubeni Corp. - and two leading iron and steel companies - Nippon Steel Corp. and Nippon Kokan K.K. - for the purpose of promoting this project on a national project basis. The council is expected to work out a detailed cooperation plan by the time the Saudi Crown Prince visits Japan this fall.

At present, the entire quantity of over 15 million barrels daily exported to Japan, the U.S. and Europe from Saudi Arabia, Kuwait, Bahrain, Qatar and the United Arab Emirates must pass through the narrow Hormuz Strait to reach the open sea. Such vulnerability is of great international concern, especially to Japan which imports 70 percent of its total oil via this strait, hence the setting up of an alternative oil supply route is a matter of keen interest not only to the government, but to trading and industrial circles as well.

Outlined below are the salient points of the Saudi proposal concerning the pipeline construction project:

- The pipeline will link the Ras Tanura oilfield in Saudi Arabia to an export terminal either at Masirah Island or Muscat in Oman.

- Japan is to undertake the laying down of the pipeline and its operation.

- In principle, Saudi Arabia will charge no transit fee for the passage of crude oil through its territory.

- The ownership of the pipeline itself will rest with Saudi Arabia.

CSO: 4120/311

MEASURES TO REHABILITATE COAL MINING INDUSTRY URGED

Tokyo JAPAN PETROLEUM & ENERGY WEEKLY in English Vol 16 No 32, 10 Aug 81 pp 1-6

[Text]

The Coal Mining Council advised the government to take measures to maintain Japan's domestic coal production at 20 million tons a year through the industry's self-help efforts for modernization, governmental support and cooperation from coal consumer industries. An advisory body to the International Trade and Industry Minister, the council (chaired by Yoshihiro Inayama, president of the Japan Federation of Economic Organizations) submitted its package of recommendations - the seventh of its kind - to Minister Rokusuke Tanaka on August 4. Based on the latest recommendation, MITI is expected to work out a new five-year plan for rehabilitation of the domestic coal mining industry, starting next fiscal year beginning April 1982.

Six years have elapsed since the council presented its sixth recommendations in July 1975, envisaging the domestic coal output at more than 20 million tons a year. Among the changes in the environment of the domestic coal mining industry, which made it necessary to update the previous recommendations, are:

- The appreciation in the yen exchange rate to the US dollar (from ¥299=$1 in fiscal 1975 to ¥219=$1 in fiscal 1980) contributed to widen the price gap between the locally produced coal and the imported coal in favor of the latter. Nevertheless, the sharply increased oil and overseas coal prices greatly improved the competitiveness of the domestic coal mining industry.

- The second oil crisis triggered by the Islamic Revolution in Iran accelerated the resurgence of coal in subsequent years as an important energy source alternative to oil from the standpoint of energy supply security.

- The current Law Concerning Special Measures for Rationalization of the Coal Mining Industry (Law No. 156 of 1955) is due to expire March 31, 1982.

Despite the government financial aid, the domestic coal mining industry still is incurring considerable recurring losses, as seen from the financial results of five largest coal mining companies shown below:

(A) = Sales realization (at coal mine)
(B) = Cost of product sold
(C) = Administration
(D) = Interest
(E) = Other non-operating expenses
(F) = Recurring losses (= A-B-C-D-E)
(G) = Government aid
(H) = Recurring losses after government aid

(Unit:¥/kiloliter)

Fiscal Year	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1975	10,235	11,117	419	500	220	-2,021	1,055	-966
1976	11,820	12,189	381	505	231	-1,486	1,197	-289
1977	13,131	13,198	399	579	284	-1,329	1,196	-133
1978	13,200	13,567	342	744	301	-1,754	1,270	-484
1979	13,060	13,769	299	881	102	-1,991	1,373	-618
1980	14,724	14,711	279	927	375	-1,568	1,401	-167

(Source: MITI)

The recommendations package includes, among others:

- Extension for five years of the current Law Concerning Special Measures for Rationalization of the Coal Mining Industry, with governmental financial aid provided from the Coal, Petroleum and Alternative Energy Special Account.

- Absorption of production cost increases arising from ever increasing depth and distance of coal-mine pits through the industry's efforts toward modernization, as well as through joint operation with neighboring collieries.

- Encouraging development of new coal mines and re-development of closed mines to cope with the growing demand for coal, with the government implementing necessary measures to support such projects.

- Maintaining the current system of setting area-to-area standard prices for domestic coal each year, but taking into account the prevailing production costs and spot imported coal prices (rather than fuel oil prices).

- Strengthened government subsidy in a selective manner to lessen the colliery-to-colliery gap in financial structures, until the measures for rehabilitation of the coal mining industry bear fruit.

- Stepped-up cooperation with countries having coal reserves for development of those resources, with infrastructure facilities streamlined to cope with the production increase.

- Promotion of R&D on expanded utilization of coal energy.

Supplementary Data

(1) Domestic Coal Production

While the council's sixth recommendations in 1975 called for maintenance of Japan's domestic coal output at more than 20 million tons a year, the actual annual production during the fiscal 1976-1980 period averaged 18.3 million tons, as shown below:

Fiscal Year	No. of collieries in operation at the yearend	Production* (1,000 tons)	Productivity (tons/man/month)
1960	622	52,607 (41,380)	18.0
1961	574	55,413 (43,625)	21.7
1962	418	53,587 (42,270)	24.9
1963	306	51,099 (39,279)	31.3
1964	263	50,774 (38,191)	36.4
1965	222	50,113 (37,506)	38.1
1966	198	50,554 (35,658)	40.3
1967	158	47,057 (32,629)	42.7
1968	142	46,282 (32,150)	47.9
1969	96	43,580 (29,770)	55.8
1970	74	38,329 (24,568)	61.0
1971	70	31,728 (17,742)	63.4
1972	55	26,979 (13,382)	66.0
1973	37	20,933 (9,817)	68.2
1974	36	20,292 (9,816)	71.8
1975	35	18,597 (9,262)	67.8
1976	30	18,325 (9,769)	69.5
1977	29	18,571 (9,602)	73.3
1978	26	18,550 (9,889)	74.6
1979	26	17,760 (10,093)	76.8
1980	25	18,095 (11,404)	81.8

(*) Figures shown in brackets indicate coking coal which are also included in figures outside.

(2) Supply & Demand of Domestic Coal

(Unit:1,000 tons)

Supply	Fiscal 1975	Fiscal 1976	Fiscal 1977	Fiscal 1978	Fiscal 1979	Fiscal 1980
Opening inventory	1,090	740	550	1,790	3,460	3,450
Production	20,290	18,600	18,330	18,570	18,550	17,760
Total	21,380	19,340	18,880	20,360	22,010	21,210
Demand						
Coking coal:						
Iron & steel	7,340	6,940	6,650	6,450	6,460	6,420
City gas	700	540	470	430	450	440
Coke	1,050	810	740	930	930	820
Others	170	160	60	70	50	90
	9,260	8,450	7,920	7,880	7,890	7,770

(Unit:1,000 tons)

Demand (cont'd)	Fiscal 1975	Fiscal 1976	Fiscal 1977	Fiscal 1978	Fiscal 1979	Fiscal 1980
Steam coal:						
9 electric utilities	4,290	4,310	4,520	4,130	4,290	5,070
Elec. Power Devel. Co.	2,640	3,010	3,040	2,990	3,140	3,420
Other elec. utilities	1,400	1,360	1,200	1,230	1,400	1,340
Others	2,280	2,230	1,790	1,410	2,170	3,640
	10,610	10,910	10,550	9,760	11,000	13,470
Closing inventory	740	550	1,790	3,460	3,450	1,880
Unaccounted for	770	-570	-1,380	-740	-330	-1,910
Total	21,380	19,340	18,880	20,360	22,010	21,210

(Source: MITI)

(3) MITI-Set Standard Prices of Domestic Steam Coal for Fiscal 1980

In accordance with the provision in Article 58 - Item 1 of the Law Concerning Special Measures for Rationalization of the Coal Mining Industry (Law No.156 of 1955), MITI minister establishes each year standard prices of domestic coal on an area-by-area basis. The standard prices for fiscal 1980 were published on October 15, 1980, as quoted below:

Steam coal for electric utilities

Area	Grade (kcal/kg,wet)	Standard Prices for Fiscal 1980*,¥/ton	
		April 1980	May 1980 through March 1981
Hokkaido	5,000	12,085	12,245
	6,000	15,300	15,705
Tohoku	6,000	16,900	17,370
Kanto	6,000	17,380	17,850
Chubu	6,000	17,440	17,910
Kansai	6,000	16,400	16,670
Chugoku	6,000	16,250	16,520
Shikoku	6,000	16,255	16,525
Kyushu	5,000	12,265	12,385
	6,000	15,860	15,950

(*) Because the Japan National Railway raised freight charges effective May 1, 1980, the standard prices for fiscal 1980 were set separately before and after the freight rate change.

Steam coal for other uses

Hokkaido	6,000	15,500	15,660
Tohoku	6,000	16,900	17,370
Kanto	6,000	17,380	17,850
Chubu	6,000	17,440	17,910
Kansai	6,000	16,400	16,670
Chugoku	6,000	16,250	16,520
Shikoku	6,000	16,255	16,525
Kyushu	6,000	15,330	15,460

(Source:MITI)

(4) Comparison of Prices - Domestic Steam Coal vs Imported Steam Coal

(Unit:¥/ton)

Fiscal Year		Domestic*	Imported	Difference	¥-$ Rate
1975		11,380	10,700 ($35.78/ton)	680	299.07
1976		13,560	9,840 (33.66)	3,720	292.35
1977		15,440	8,980 (35.01)	6,460	256.53
1978		15,850	7,620 (37.83)	8,230	201.43
1979		16,440	9,720 (42.54)	6,720	228.50
1980		17,850	12,100 (55.33)	5,750	218.67
	July	17,850	11,030 (50.61)	6,820	217.95
	August	17,850	12,740 (56.66)	5,110	224.85
	September	17,850	12,840 (58.60)	5,010	219.10
	October	17,850	11,930 (56.76)	5,920	210.18
	November	17,850	11,780 (55.76)	6,070	211.28
	December	17,850	12,380 (58.16)	5,420	212.85
1981	January	17,850	12,130 (59.46)	5,720	203.99
	February	17,850	11,330 (55.69)	6,520	203.44
	March	17,850	12,450 (59.91)	5,400	207.80
	April	17,850	13,140 (61.98)	4,710	211.99
	May	17,850	14,510 (66.81)	3,340	217.18
	June	17,850	15,020 (67.09)	2,830	223.89

(*) MITI-set standard price applicable to domestic coal (@6,000 kcal/kg) delivered to ports in the Tokyo/Yokohama area. MITI announced the fiscal 1980 standard prices (retroactive to April 1, 1980) in October 1980. Meanwhile, the fiscal 1981 prices (beginning April 1981) have not been set yet and therefore, the fiscal 1980 prices are assumed to apply to months in fiscal 1981, as shown above.

(5) Economic Advantage of Steam Coal vs Fuel Oil C

(Based on a model power plant located at Takasago, Hyogo Pref.)

	Fiscal 1975		June 1981	
Coal price*:	Domestic	Imported	Domestic	Imported
¥/ton	10,740	12,030	16,640	16,960
¥/1,000 kcal (a)	1.92	2.16	2.98	3.04
Additional cost associated with coal**:				
¥/ton	.... 2,750		.... 2,850	
¥/1,000 kcal (b)	.... 0.49		.... 0.51	
Fuel oil C price***:				
¥/kl	.... 21,700		.... 51,350	
¥/1,000 kcal (c)	.... 2.21		.... 5.24	
Coal vs Fuel oil C (a+b−c):				
¥/1,000 kcal	0.20	0.44	-1.75	-1.69
¥/ton coal	1,116	2,455	-9,765	-9,430

(*) MITI-set standard price of domestic coal (@6,000 kcal/kg; 5,580 kcal/kg after removing moisture), delivered to Takasago.

(**) Expenses related to storage of coal, ash disposal, etc.

(***) Sulfur content 3.0% and 9,800 kcal/liter.

(Source:MITI)

(6) Coal's Position in Japan's Long-Range Energy Supply (dated August 31, 1979)

	Fiscal 1985	Fiscal 1990	Fiscal 1995
Domestic coal, million tons			
Steam coal	10.0	10.0	10.0
Coking coal	10.0	10.0	10.0
	20.0	20.0	20.0
Imported coal, million tons			
Steam coal	22.0	53.5	80.5
Coking coal	79.0	90.0	97.5
	101.0	143.5	178.0
Total	121.0	163.5	198.0
% Share of Japan's total primary energy supply:			
Domestic steam coal	1.2%	0.95%	0.85%
Domestic coking coal	1.3	1.05	0.95
	2.5	2.00	1.80
Imported steam coal	2.5%	5.0%	6.6%
Imported coking coal	11.1	10.6	9.9
	13.6	15.6	16.5
Total	16.1%	17.6%	18.3%

CSO: 4120/316

PRATT, GE SEEK PARTICIPATION IN RJ500

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 p 3

[Text]

Pratt & Whitney (P&W) and General Electric (GE) of the United States have sounded out Japanese industry for their participation in the RJ500 engine development program now being promoted jointly by Rolls-Royce Limited of the United Kingdom and three Japanese heavy industrial firms, IHI, KHI and MHI, Japanese industry sources said last week.

Taiji Ubukata, President of IHI, informed British Secretary of State for Industry Sir Keith Joseph about the approaches by the two American manufacturers during his recent UK visit, the sources report. Representatives of the three Japanese companies have also been in touch with top executives of Rolls-Royce about the matter, they say.

The Japanese industry is reportedly welcoming such a move by P&W and GE on the grounds that this will help reduce the financial burden of each participating company. Participation by an American manufacturer(s) will also help speed up the development time table, Japanese industry leaders point out.

Since the beginning of July, top executives of P&W and GE have been in Japan one after another to sound out the possibilities of their participation in the RJ500 engine program. They are expected to make official proposals to Rolls-Royce and the three Japanese partner companies very soon on their plans to participate in the program.

The Ministry of International Trade and Industry (MITI) basically welcomes participation of other world leading engine manufacturers in the program on the condition that this meets full approval of the British partner, Rolls-Royce.

The board of directors of Rolls-Royce and Japanese Aero Engines Limited, the joint venture between Rolls-Royce and the three Japanese manufacturers, met in London toward the end of July and decided to power up the RJ500 engine so that it will be suitable for 150-seater aircraft. The first prototype engine, designated RJ500-01, is planned to begin test running at the end of January 1982 at Bristol facility of the British company.

CSO: 4120/317

ADVISORY BODY FAVORS PRIVATE TAKEOVER OF NAMCO

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 p 4

[Text] An opinion supporting the private sector's proposed takeover in FY 1982 of the semi-governmental Nihon Aeroplane Manufacturing Co.'s (NAMCO) current business prevailed at the 14th meeting late in July of the Policy Subcommittee of the Aircraft & Machinery Industry Council's Aircraft Industry Committee, an advisory body to the Ministry of International Trade and Industry (MITI). NAMCO is now engaged in supply of spare parts for in-service YS-11 turboprop airliners.

While supporting the takeover, some members of the subcommittee said appropriate measures should be taken to secure the continued manufacture of YS-11 parts, technical assistance to YS-11 users, production control for subcontractors and smooth parts supply for safe operation of the aircraft. They also said full consideration should be given to current NAMCO employees.

The subcommittee eventually decided to discuss these problems with government agencies concerned and the industry sector before compiling recommendations on the takeover in the middle of August.

The meeting also dealt with Japan's Boeing 767 production setup and development of the Y-XX medium-size transport. Most of the participants proposed that Civil Transport Development Corp. (CTDC), a non-profit corporation representing Japanese interests in the B-767 program, transfer the program to a new company after mass production of B-767s starts in FY 1983. As to the Y-XX program, the subcommittee members agreed that CTDC should undertake the program in the immediate future. But some members said if foreign partners for the Y-XX program are selected, the Japanese undertaker should be reconsidered. They apparently fear that CTDC, involved in the B-767 program, would not be appropriate for the Y-XX program in case foreign aircraft manufacturers other than Boeing are selected as partners.

On jet engine development programs, such as the Rolls-Royce/Japan RJ500 project, the subcommittee members shared the view that organizations other than aircraft development corporations should take charge of engine programs.

CSO: 4120/317

Y-XX PROGRAM REPORTED AT STANDSTILL

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 pp 4-5

[Text]

Work on a preliminary design of the Y-XX new medium-size transport has been at a standstill as NAMCO's labor union, whose 30 members are being transferred to CTDC to undertake the Y-XX program, remains opposed to the program. Although CTDC intends to start the Y-XX program with the preliminary design work in the current fiscal year, NAMCO's labor union has insisted that the advisability of the design work is doubtful at a time when the program has yet to take a definite shape.

The union is also opposed to MITI's plan to dissolve the semi-governmental NAMCO in FY 1982 in administrative reform efforts.

CTDC submitted to the union a proposal last May for establishment of a Y-XX program preparation office consisting mainly of engineers from three major aircraft manufacturers, including Mitsubishi Heavy Industries Ltd., to launch the preliminary design work. But this proposal has yet to be accepted by the union which has demanded that NAMCO undertake the Y-XX program. The union has also asked CTDC to use as many NAMCO employees as possible for the program, complaining about CTDC's plan to get employees mainly of other aircraft manufacturers engaged in the program.

Although CTDC set up the office at the end of June, its activities have yet to start because of the NAMCO union's opposition.

CSO: 4120/317

SONY TO PROMOTE AEROSPATIALE HELICOPTER SUPPORT

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 pp 5-6

[Text]

Sony Corp., which was named sales agent of Aerospatiale's Helicopter Division half a year ago, intends to set up one or two service centers for users of Aerospatiale helicopters in the eastern and northeastern parts of Japan in order to step up its service for the French firm's helicopters. These will be in addition to ANA Aircraft Maintenance Co., the Aerospatiale-centificated service center for the western part of the nation.

It also plans to stockpile spare parts for the AS355 Ecureuil, SA365N Dauphin 2 and other third-generation helicopters of Aerospatiale, to employ service engineers trained at the French company for regular maintenance service for users, and to station representatives in France for smooth communications with Aerospatiale.

Sony has already landed Japanese orders for about 10 Aerospatiale helicopters, of which the first one (an AS350B) will arrive in Tokyo in September for assembly by ANA Aircraft Maintenance before delivery to Nagano Broadcasting Co. at the end of November. Others will be delivered by the summer of 1982.

It has scheduled the first demonstration flight in Japan of the new AS355F twin-turbine helicopter for the spring of 1982. It will take delivery of the helicopter in France in December for local pilot training prior.

CSO: 4120/317

JDA, MITI DIFFER OVER MT-X CONTRACTOR SELECTION

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 pp 6-7

[Text]

The Japanese Defense Agency (JDA) and MITI are somewhat different over selection of a prime contractor for the development of the MT-X new intermediate trainer, according to informed sources.

The JDA started consultation with MITI late in July on the selection after in-house evaluation of proposals by the three prime contractor candidates -- Mitsubishi Heavy Industries Ltd. (MHI), Fuji Heavy Industries Ltd. (FHI) and Kawasaki Heavy Industries Ltd. (KHI). The sources said the JDA gives priority to technical aspects of the proposals, while MITI attaches importance to balanced development of the Japanese aircraft industry.

Thus, even tentative selection is expected to be delayed until the end of August. There is also some possibility that the three companies would undertake the MT-X program jointly.

The JDA made the request for proposal (RFP) to the three firms last April 15, and received proposals at the end of May. Early in June, it held consultations separately with the three companies to evaluate these proposals.

In the RFP, the JDA explained that the MT-X's climb rate over the sea is planned at 3,000 meters per minute to fill the gap between 550 meters for the T-3 primary trainer and more than 10,000 meters for the F-15 fighter. The MT-X, similar to the F-86 in shape, is designed to undertake a wide-range of training flights from acrobatic flights to stalling.

Among the three companies responding to the RFP, MHI seems superior to the other two in the technological field because of its development and production of the T-2 supersonic trainer. KHI's technology for acrobatic flight performance of small aircraft is said to be somewhat inferior. Although KHI has experienced license production of the T-33 trainer, its aircraft production now centers on larger aircraft such as the P-3C antisubmarine patrol plane. FHI, though strong in technology for small aircraft, has yet to catch up with MHI technologically. Thus, MHI is the most promising candidate as far as the technological aspects are considered primarily.

CSO: 4120/317

SCIENCE AND TECHNOLOGY

NATION READY TO TRANSFER DEFENSE TECHNOLOGY TO U.S.

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 pp 7-8

[Text]

The JDA is expected to express Japan's readiness to meet the United States' request for advanced Japanese military technologies as much as possible at the third defense technology and equipment conference with the U.S. Defense Department in Washington in September.

The U.S. request was made at talks in Washington in late June between Japanese defense chief Joji Omura and U.S. Defense Secretary Caspar Weinberger. Omura promised Weinberger to consider the request.

The forthcoming conference between senior officials of the JDA and the Pentagon is designed to deal with specific technology items which the United States wants from Japan. After the conference, the Japanese government intends to lead the industry sector to transfer its defense technologies to the United States.

The U.S. request has attracted keen attention from major Japanese trading houses, which intend to handle Japan's defense technology exports to the United States if possible. They have already started preparation for the exports, expecting the Americans to specify Japanese technologies for their introduction at the forthcoming conference.

The trading houses are interested in the technology exports at a time when their part in Japan's defense equipment imports has declined due to increased domestic production of weapons systems. MITI has been promoting domestic arms production in consideration of recent technical development of Japanese arms manufacturers. For example, Toshiba Corp. has obtained a prime contract for the Tan-SAM short-range surface-to-air missile, eclipsing European manufacturers. As to the new BADGE air defense system, the JDA has decided to have domestic manufacturers undertake its development and production, although the existing system was introduced from

Hughes Aircraft for license production. Five Japanese electronics manufacturers are now competing for a prime contract for the new BADGE.

The U.S. request also meets the trading houses' new policy of stepping up trade in electronics products, as the Americans have expressed hope to introduce especially advanced electronics technologies from Japan. They expect that Japanese technologies wanted by the Americans would involve laser weapons and radar systems. The Americans are reportedly interested in laser weapons systems now under study at the JDA. As to radars, trading house sources speculate that possible weapons systems for Japan-U.S. joint development in the future may be precision-guided missiles (PGM) using Japan's advanced radar technology. The trading firms expect that their trade in military electronics products could lead to expansion of their consumer electronics business.

CSO: 4120/317

SCIENCE AND TECHNOLOGY

ASDF TO CONSIDER NEW SUPPORT FIGHTER FOR FY 1983-1987 MTDP

Tokyo JPE AVIATION REPORT-WEEKLY in English No 533, 5 Aug 81 pp 9-10

[Text]

The Air Self-Defense Force (ASDF) plans to consider development of a new support fighter, dubbed FS-X, for the FY 1983-87 Medium-Term Defense Program (MTDP) to be prepared by the end of the current fiscal year.

It wants to develop the FS-X as a replacement of the F-1 support fighter after completing aquisition of 100 support fighters in the late 1980s as stipulated in the National Defense Program Outline. At the end of the FY 1980-84 MTDP, the ASDF's F-1 funding is estimated to total 66 aircraft. The remainder will be filled with F-4EJ fighter-interceptors converted into support fighters as its inventory of F-15J fighter-interceptors increases. Thus, the FS-X is expected to replace the F-1 from the early 1990s. Although foreign aircraft could be considered as candidates for the FS-X, the ASDF is certain to adopt domestic development starting in the latter half of the FY 1983-87 MTDP.

The ASDF intends to use the result of on-going research by the JDA's Technical R&D Institute (TR&DI) into the control-configured vehicle (CCV), a high-performance aircraft, for development of the FS-X. A preliminary proposal for the FS-X development has been submitted to the ASDF by Mitsubishi Heavy Industries Ltd. which has developed the F-1 and is manufacturing an experimental CCV for the TR&DI.

e ASDF, interested in the preliminary proposal, hopes tl concrete FS-X development project would be incorporated into the new FY 1983-87 MTDP to secure continuous modernization of its support fighter fleet.

CSO: 4120/317

TOP EXECUTIVES OF MDC, FOKKER IN TOKYO

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 p 4

[Text]

Sanford N. McDonnell, Board Chairman of McDonnell Douglas Corp., and Frans Swarttouw, Chairman of Fokker Aircraft Co., were due to arrive in Tokyo early this week for talks with leaders of the three major Japanese aircraft manufacturers, MHI, KHI and FHI, as well as senior officials of the Ministry of International Trade and Industry (MITI).

McDonnell and Swarttouw are expected to present details of the MDF-100 program to the industry leaders here, sounding out the possibility of Japanese participation in it.

Just prior to their arrival in Japan, top officials of the Japanese aircraft industry, including Eiichi Ohara (Chairman of FHI and President of Civil Transport Development Corporation which represents the Japanese interest in the Boeing 767 development program) were in Seattle, Washington, to attend the roll-out ceremony of the first 767 aircraft. They were presumed to have talked to Boeing leaders on its new aircraft programs during their stay in Seattle.

The Japanese are searching for an international partner(s) for the development and production of a new medium-size aircraft coded here as the Y-XX. Boeing, McDonnell Douglas/Fokker and Airbus Industrie are listed as partner candidates. Although the situation is very fluid, a decision is presently expected toward the end of this year.

CSO: 4120/315

SCIENCE AND TECHNOLOGY

SJAC ASSIGNS 12 FIRMS TO 15 RESEARCH, DEVELOPMENT PROJECTS

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 pp 4-6

[Text]

The Advanced Aircraft Technology Development Center of the Society of Japanese Aerospace Companies (SJAC) has comissioned 12 member companies to undertake 15 research-and-development projects in FY 1981 (April 1981-March 1982).

The 15 projects comprise six for airframe structures, four for propulsion systems and five for pilot systems. They include five new projects for environmental characteristics of materials reinforced by carbon and Kevlar fiber, load controls for fuel-efficient transonic aircraft, aerodynamic shapes of fuel-efficient transonic planes, microprocessor-using combustion control systems, and optical aircraft attitude sensors.

The 15 projects and the 12 companies follow:

Airframe Structures

(1) Helicopter blades made of composite materials: Kawasaki Heavy Industries Ltd. (KHI)

(2) Processes for machining lightweight integrated structures: Mitsubishi Heavy Industries Ltd. (MHI).

(3) Highly rigid aluminum alloy: Kobe Steel Ltd., Sumitomo Metal Industries Ltd., and Furukawa Aluminum Co.

(4) Environmental characteristics of present airframe materials reinforced by carbon and Kevlar fiber: Shin Meiwa Industry Co. (Technical data for using these composite materials for airframe structures will be collected through research into environmental effects on strength and rigidness of the reinforced materials)

(5) Load control for fuel-efficient transonic aircraft: KHI. (Load and rigidness controls for high aspect-ratio transonic wings will be studied to determine the direction of future technology for transonic aircraft)

(6) Aerodynamic shapes of fuel-efficient transonic aircraft: KHI. (Engineering data will be collected to improve transonic aircraft wings for stepped-up fuel efficiency)

Propulsion Systems

(7) High-temperature and high-load turbines: Ishikawajima-Harima Heavy Industries Co. (IHI).

(8) Engine combusters producing less nitrogen oxide: KHI

(9) Variable pitch structures for high-speed propellers: Sumitomo Precision Products Co.

(10) Combustion control systems using microprocessors: IHI. (Technical data will be collected to develop highly-reliable digital electronic fuel control systems using microprocessors with environment-resisting silicon on sapphire being applied)

Pilot Systems

(11) New automatic pilot systems: Japan Aviation Electronic Industry Co.

(12) Data processing systems using optical fiber: Fujitsu Ltd.

(13) New aircraft navigation systems: Nippon Electric Co. (NEC).

(14) New cockpit display systems: Shimadzu Corp.

(15) Optical attitude sensors for aircraft: NEC. (Technical data will be collected to apply optical fiber gyros to optical aircraft attitude sensors)

CSO: 4120/315

SUMITOMO TO EXPORT 767 LANDING GEAR PARTS TO CPC

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 p 6

[Text]

Sumitomo Precision Products Co. has signed a $400,000 contract to export 216 landing-gear brake rods for 27 Boeing 767s to Cleveland Pneumatic Co. (CPC) in January-June 1983.

The contract was clinched late in July to mark the 25th anniversary of Sumitomo's technical tie-up with CPC. It represents Sumitomo's first export to CPC. So far, Sumitomo has introduced technologies from the American landing gear manufacturer for domestic use only.

CPC has appreciated Sumitomo-developed complex technology for machining brake rods made of special steel. Its product has passed Boeing Co.'s examination regarding the landing gear. Sumitomo expects to receive additional orders for B-767 landing gear brake rods from CPC.

Sumitomo tied up with CPC in June 1956 to introduce CPC's knowhow for F-86 landing gear.

CSO: 4120/315

NAL TESTS AILERON FOR STOL AIRCRAFT

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 pp 7-8

[Text]

The National Aerospace Laboratory (NAL) of the Science & Technology Agency has conducted basic tests on the boundary layer control of the aileron to be attached to the main wing of its experimental short takeoff and landing (STOL) aircraft now under development, and found there are no problems with the drilled-hole nozzle which has never been used for aircraft anywhere in the world.

The successful tests have led the NAL to adopt the new nozzle for the STOL aircraft. The drilled-hole nozzles are a line of two-millimeter-diameter holes in front of the aileron to blow off high-pressure air in order to prevent laminar separation on the upper surface of the aileron.

Originally, the NAL design called for air to be blown off from the engine's compressor at 8.5 atomospheres of air pressure through one-millimeter-diameter holes. Later, however, it found that much air pressure would be lost before blowing off. Then, it reduced the air pressure to 3.24 atmospheres and increased the hole's diamter to two millimeters in order to secure sufficient air. The latest tests at a low-speed wind tunnel of Kawasaki Heavy Industries Ltd.'s Gifu Works were aimed at confirming the revised nozzle's satisfactory performance.

The aileron is a key part of the high-lift device which enables the aircraft's short takeoff and landing. Usually, it is inclined by 40 degrees for takeoff and landing. In case the engines are in trouble, however, it would have to be inclined by as much as 60 degrees at the risk of causing it to stall. In order to avoid the stall, the laminar flow on the upper surface of the aileron must be maintained.

On the NAL-designed STOL aircraft, high-pressure air is blown off on the upper surface of the aileron through drilled holes at the main wing's hollow 15 centimeters away from its rear edge to prevent laminar separation. On European and U.S. STOL aircraft, however, a one-millimeter-wide slit is used as the nozzle for blowing off low-pressure air. The NAL is confident that the drilled hole is easier to make.

Although doubts had been cast over whether high-pressure air through the drilled holes can spread over the aileron evenly, the tests cleared such doubts and indicated no performance problems.

The NAL intends to complete the experimental STOL aircraft by 1983 for flight tests.

CSO: 4120/315

SCIENCE AND TECHNOLOGY

JDA TO SELECT MT-X PRIME CONTRACTOR IN SEPTEMBER

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 pp 9-10

[Text]

The JDA will select a prime contractor for the development of the MT-X intermediate trainer for the Air Self-Defense Force (ASDF) in September, though some quarters had expected it to name the prime contractor by early July to seek that manufacturer's cooperation in preparing the budget request for FY 1982.

It now intends to incorporate an average of the cost estimates proposed by the three contenders for the MT-X prime contract into the FY 1982 budget request, which will be submitted to the Ministry of Finance late in August. Originally, the JDA planned to select the prime contractor earlier to work out a definite estimate which can stand firm against severe downward pressure on research and development expenses resulting from its policy of giving top priority to procurement of main defense equipment for the immediate future.

Upon selection of the prime contractor from MHI, KHI and FHI, the JDA will organize an MT-X engineering team to start work on a preliminary MT-X design which has been funded under the FY 1981 budget.

Meanwhile, IHI is trying to reduce costs for the XF-3 small turbofan engine which it has designed for the MT-X because the JDA has decided to hold the MT-X engine price down to not more than ¥150 million per unit with the trainer's total price planned at less than ¥1,300 million.

The XF-3 engine has already met the JDA's performance requirements for the MT-X involving the thrust power and weight. But it seems to be difficult for IHI to meet the cost requirements for the MT-X at a time when prices of imported engine materials such as titanium are rising due to the yen's sharp depreciation against the U.S. dollar.

The Snecma Larzac and the Garrett AiResearch TFE1042 are competing with the XF-3 as candidates for the MT-X engine. Selection of the MT-X engine is expected to come in October 1982 at the earliest.

In view of the two foreign candidates, IHI is now reviewing the whole design of the XF-3 in a bid to reduce its production cost as much as possible.

As MT-X procurement is estimated to total 200 aircraft, engine production for the aircraft could reach more than 600 units, which is beyond the generally accepted break-even line for aircraft engines of 500 units.

CSO: 4120/315

SCIENCE AND TECHNOLOGY

DURABILITY OF H-1 ROCKET'S COMBUSTION CHAMBER PROVEN

Tokyo JPE AVIATION REPORT-WEEKLY in English No 534, 12 Aug 81 p 10

[Text]

The National Space Development Agency (NASDA) has tested a prototype combustion chamber of the LE-5 second-stage engine for the H-1 rocket now under development and confirmed its satisfactory durability.

In the tests at Mitsubishi Heavy Industries Ltd.'s Tashiro testing facility in Akita Prefecture in late July, the combustion chamber was run for 360 seconds to simulate the actual operation of the LE-5 on the rocket. The 360-second run, done three times, proved the chamber has no problems regarding durability, paving the way for tests of the chamber linked with the propellant tank starting in November.

Before the tests, NASDA ran another prototype combustion chamber for 60 seconds with propellant supplied from a separate high-pressure run tank to confirm its normal operation. This prototype will be linked with the propellant tank for the tests late this year, which will be preceded by tests of a full engine system containing the combustion chamber, the liquid hydrogen (propellant) turbo pump and the liquid exygen (oxidizer) turbo pump in August.

The tests starting in November, the final stage for the development of the LE-5, are designed to find problems with the linkage between the full engine system and the propellant tank and confirm performance of the overall second-stage propulsion system.

NASDA plans to use the H-1 rocket for launching large satellites for broadcasting, air traffic control and other purposes. Its thrust is designed at about 500 kilograms.

CSO: 4120/315

ASDF ASKS THREE FIRMS FOR BADGE-X PROPOSAL

Tokyo JPE AVIATION REPORT-WEEKLY in English No 535, 19 Aug 81 p 6

[Text]

The Air Self-Defense Force (ASDF) has requested Fujitsu, Hitachi and Nippon Electric Co. (NEC) for proposals on the development and production of the BADGE-X new air defense environment system which it plans to begin construction in FY 1983. NEC will tie up with Mitsubishi Electric Corp. (MELCO), Toshiba and Oki Electric. The proposals will be submitted to the air force authorities by the end of January 1982.

Hughes Aircraft Co., which has designed and produced the present BADGE system in cooperation with NEC, will give technological assistance to the NEC group.

The ASDF is scheduled to make a decision in summer 1982 so that initial appropriations will be included in the FY 1983 defense budget request which will be submitted to the Ministry of Finance by the end of August 1982. The BADGE-X system is scheduled to be placed in service in FY 1988 (April 1988 - March 1989).

CSO: 4120/308

NEC NAMED TO PRODUCE NIKE SPARE PARTS

Tokyo JPE AVIATION REPORT-WEEKLY in English No 535, 19 Aug 81 p 7

[Text]

The ASDF has named Nippon Electric Co. (NEC) to serve as the prime contractor for license production of spare parts for its Nike-J surface-to-air missile system to cope with the U.S. Army's suspension of spare parts supply to Japan through the Foreign Military Sales channel in 1985, according to Gen. H. Toyoshima, head of the Supply Headquarters.

NEC will undertake production of the spare parts, maintenance of the Nike-J system, quality control on the parts, management of technical materials and countermeasures for Nike-J technical problems. It will be responsible for these jobs as long as the ASDF operates the Nike-J system. NEC will utilize NEC Radio Equipment Engineering and Hitachi Shonan Electronics as subcontractors for spare parts production.

The ASDF will determine specific spare parts for NEC's production after receiving a proposal from it by mid-October. It may give top priority to economy in selection of the spare parts for license production.

CSO: 4120/308

SCIENCE AND TECHNOLOGY

MSDF TO DELAY FULL-SCALE PROCUREMENT OF NEW K-X MINES

Tokyo JPE AVIATION REPORT-WEEKLY in English No 535, 19 Aug 81 p 11

[Text]

The MSDF is expected to delay full-scale procurement of the improved-version K-X wire-moored mines until FY 1983 depending on results of the ongoing final tests, according to observers.

The JDA's Technical R&D Institute (TR&DI) has been developing the new K-X since FY 1973 in a follow-up to engineering development of the B-X sunken mine. Full-scale deployment of the Model 80 B-X mine started in FY 1980. The FY 1981 budget includes ¥1,000 million for B-X procurement.

The TR&DI carried out engineering development of the new K-X in FY 1977 at cost of ¥500 million, followed by technical and application tests starting in the latter half of FY 1978. Final functional tests have been under way since FY 1980. Although service entry certification had been expected for the end of the current fiscal year to pave the way for full-scale deployment from FY 1982, observers now speculate that there will be a delay.

The TR&DI is designing the new K-X to be laid far deeper than the existing K-X wire-moored mine. To that end, durability of the rope wire may be improved along with the mine's striking power.

CSO: 4120/308 END

END OF

FICHE

DATE FILMED

10 Sept 1981